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**DAVID W. TAYLOR NAVAL SHIP
RESEARCH AND DEVELOPMENT CENTER**

Bethesda, Maryland 20084



DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM (DMPPS)

VOLUME 6 - REPORT GENERATOR SUBSYSTEM

by

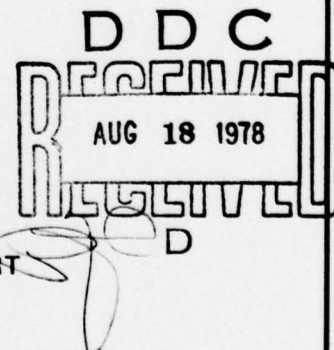
Jean K. St. Laurent
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DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
VOLUME 6 - REPORT GENERATOR SUBSYSTEM

COMPUTATION, MATHEMATICS AND
LOGISTICS DEPARTMENT
RESEARCH AND DEVELOPMENT REPORT

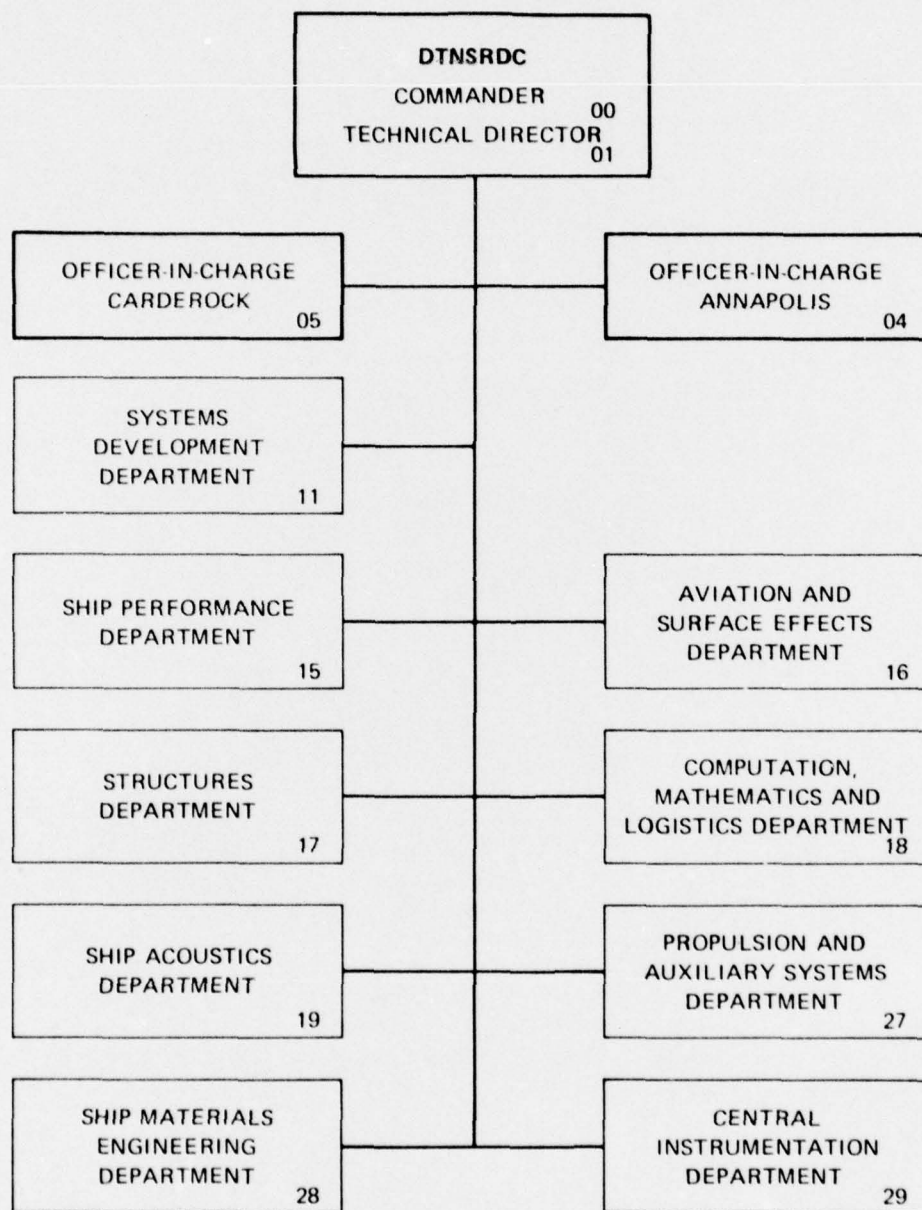


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- Changes in depot-level maintenance/alterations policy,
- Major changes in force levels and/or composition, and
- Budgetary constraints,

DMPPS consists of a network of interdependent computer programs written in FORTRAN IV. It was developed at DTNSRDC using the CDC 6000 series computers and was subsequently converted for the IBM 360/370 series computers. It is now installed and operational at the NAVSEA 070 computer terminal (which accesses an IBM 370/168 computer). This document presents the IBM 360/370 version of the DMPPS program modules. The modules have been grouped into six subsystems. Each of Volumes 2-7 of this document describes, in detail, one of these subsystems. An executive summary of the entire DMPPS is presented in Volume 1. The content of the seven volumes is indicated as follows:

- Volume 1 - Executive Summary
- Volume 2 - Preprocessor Subsystem
- Volume 3 - Alterations Subsystem
- Volume 4 - Repair Subsystem
- Volume 5 - Synthesizer Subsystem
- Volume 6 - Report Generator Subsystem.
- Volume 7 - Feedback Subsystem

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ABSTRACT

The Depot Maintenance Planning and Programming System (DMPPS) is a large computer system developed over a period of two and a half years by the David W. Taylor Naval Ship Research and Development Center (DTNSRDC), Code 186 for the Naval Sea Systems Command (NAVSEA), Code 070T. The System was developed to project shipyard resource requirements (i.e., labor mandays and costs as well as material costs) by shipyard production shop and by ship work breakdown structure (SWBS). It enables management to assess the impact on the shipyards and ship systems of

- Changes in depot-level maintenance/alterations policy
- Major changes in force levels and/or composition
- Budgetary constraints

DMPPS consists of a network of interdependent computer programs written in FORTRAN IV. It was developed at DTNSRDC using the CDC 6000 series computers and was subsequently converted for the IBM 360/370 series computers. It is now installed and operational at the NAVSEA 070 computer terminal (which accesses an IBM 370/168 computer). This document presents the IBM 360/370 version of the DMPPS program modules. The modules have been grouped into six subsystems. Each of Volumes 2-7 of this document describes, in detail, one of these subsystems. An executive summary of the entire DMPPS is presented in Volume 1. The content of the seven volumes is indicated as follows:

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- Volume 7 - Feedback Subsystem

6. REPORT GENERATOR SUBSYSTEM

DoD Instruction 4151.15 imposed certain reporting requirements on depot level maintenance facilities. In particular it required cost and workload projections by Ship Work Breakdown Structure (SWBS) for the current and five succeeding fiscal years. SWBS is used to classify work with respect to its cause or purpose. The Report Generator Subsystem is the final module in the Depot Maintenance Programming and Planning System (DMPPS) and was designed to meet those requirements. The subsystem consists of four programs: REPSHOP, PREWBS, REPWBS, and REPMAT whose functions are to produce summary reports. Forecasting of work breakdown may be specified by SWBS, by Shop, or by SWBS-Shop Matrix reports. The program XPLODE (Volume 5 - Synthesizer Subsystem) generates files showing the distribution of projected workloads among the nine single-digit SWBS categories and the 20 shipyard production shop categories (19 shops and "other direct" work). The program PREWBS (Section 6.2) is a preprocessor that reads the SWBS File and a Group Definition Card Deck defining various ship groupings. Groups are identified by ship type and hull number range combinations and may encompass broad categories such as surface ships, amphibious ships, or carriers; or may specify a single ship type and hull number. The program PREWBS creates a file which has as a header record the ship group definition and contains all availabilities pertaining to those ships. The program REPWBS uses this file as input and, with a data deck containing material factors and manday rates, produces reports on projected direct labor mandays, direct labor dollars, and material dollars. Reports may be generated for all work in a given shipyard for designated ship groupings and fiscal years. Additional report options include ownership (Navy or private), coast (east or west), type of work (work on active ships, MAP (Military Assistance Program) work, NRT (Naval Reserve Training) work and conversion work) as well as a separation of repair and alteration work.

Reports produced by the program REPSHOP reflect projected workloads in the various production shops pertaining to repair work, alteration work, or their total. Reporting is done by shipyard, then within a

yard by ship groups, and within groups by year. Input cards are used to define ship groupings. Workload projections may be formulated at both the shipyard and individual ship and ship group level.

The program REPMAT forecasts the distribution of work to be performed in both shops and SWBS categories by producing a matrix for a given shipyard, ship group, and year. The mandays are spread over the production shops and "other direct" categories and the nine single-digit SWBS categories and their totals, formulating a 10-by-20 matrix. Reports specify repair mandays, alteration mandays, or total mandays, according to input options.

6.1 PROGRAM REPSHOP

6.1.1 DESCRIPTION

REPSHOP is a report generator that produces summary reports of projected workloads to be performed in the various production shop categories. The 19 production shop categories referred to in these reports are as follows:

<u>Shop Number</u>	<u>Shop Name</u>
06	Central Tool Shop
11	Shipfitter Shop
17	Sheetmetal Shop
23	Forge Shop
26	Welding Shop
31	Inside Machine Shop
36	Weapons System Shop
38	Outside Machine Shop
41	Boiler Shop
51	Electric Shop
56	Pipe and Copper Shop
64	Woodworking Shop
65	Module Repair and Maintenance Facilities
67	Electronics Shop
71	Paint Shop
72	Rigging Shop
81	Foundry Shop
94	Patternmaker Shop
99	Temporary Service Shop

Those areas, in which productive work is performed, that are not covered by these categories are referred to as "other direct." The projections are for a period of five years and reflect total direct labor mandays for repairs and for alterations. The program uses as input the Shop File created by the program XPLODE (Volume 5 - Synthesizer Subsystem), a Group Definition Card Deck, and input cards defining report options.

Each record on the Shop File corresponds to a record on the Depot Maintenance Assignment File (DMAF). It contains the ship type and hull number, type of work, shipyard, sector, and fiscal year, as well as the 20 repair manday values and the 20 alteration manday values projected for the shipyard production shop categories. (The 19 shop categories and "other direct" will be referred to as the 20 shops.)

Shop 65 has been deleted from the matrix for reporting purposes, since Charleston Shipyard is the only yard that uses it. Historical data collected to date from Charleston showed no work in that shop. In the future, if work is projected for shop 65, it will be combined with shop 68.

Reports can be generated for repair mandays, for alteration mandays, or for the total of both. Any five fiscal years may be chosen. Selection of shipyard is made first and ship groupings are determined within a given yard. The desired years remain constant for all reports.

A Group Definition Card Deck defines the ship groupings which may be reported on. Since the user may define the ship groupings, there is great flexibility in levels of reporting. A group may consist of a single ship, a ship class, functional ship groupings, or any combination of these. Also since the Group Definitions are input values, it is quite simple to redefine groups, but this should not be necessary as provision has been made for 100 ship groupings. For each grouping there may be as many as six sets of lower and upper ship-type/hull-number range combinations. For example, surface combatants might be described by the following grouping: CG 4 through CGN 39, CV 19 through CVN 70, DD 714 through DDG 41, FF 1037 through FFG 7, and CVT 16 through CVT 16.

A group number is assigned to this grouping. This group number is compared to the one requested on the Yard Option card. If there is agreement, the ship type and hull number are examined. Those that fall within the grouping are reported on. The capability to select various groupings means that reports can be made on broad categories, such as all surface ships, or to the detail of a single ship type and hull number. In the sample run, work projected for all CGN's was desired. Therefore,

Group 1 was defined as CGN 1 through CGN 9999. Thus every hull number between 1 and 9999 was included. Group 2 consisted of one ship and was defined as CGN 35 through CGN 35.

A type A Yard Option card, the first of two to describe the various options, contains the shipyard name and the word "ALL" if the entire yard is to be reported on. To designate the type of work desired, the word "REP" for repairs, "ALT" for alterations, and "TOT" for total of repairs and alterations must be requested. Any combination of these options may be selected. In addition, the required years to be reported on are input on this card. The years do not have to be sequential.

The second Yard Option card, a type B card, contains the yard name and group numbers required for that yard. There may be 15 sets of Yard Option cards with as many as 25 groups per yard. A Yard Option Terminator card follows the final type B Yard Option card and contains the word "LAST." A sample input set-up is shown in Figure 6.1-1.

All yard information is read at the beginning of the program and is stored in arrays. The first record of each yard on the Shop File is examined. If that yard is not required, the entire yard is skipped. The subroutine SUM is called to process the data for each record in which the year and ship type are among those requested. As a yard is completed, subroutine REPORT is called and data are extracted for reports by year and group number. Figure 6.1-2 presents a hierarchical diagram of REPSHOP.

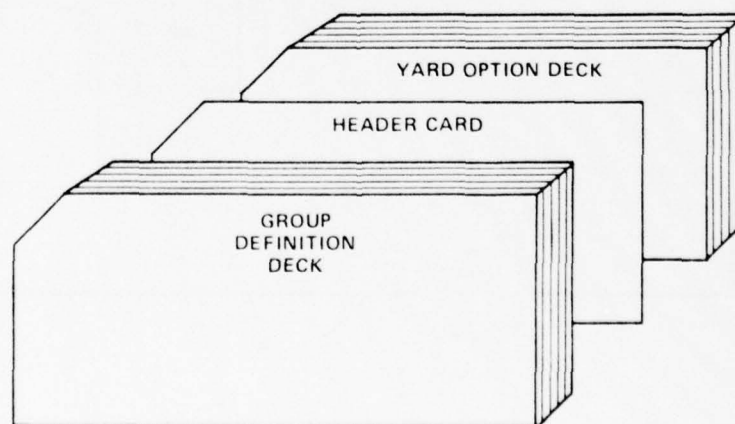


Figure 6.1-1 - Input Deck for REPSHOP

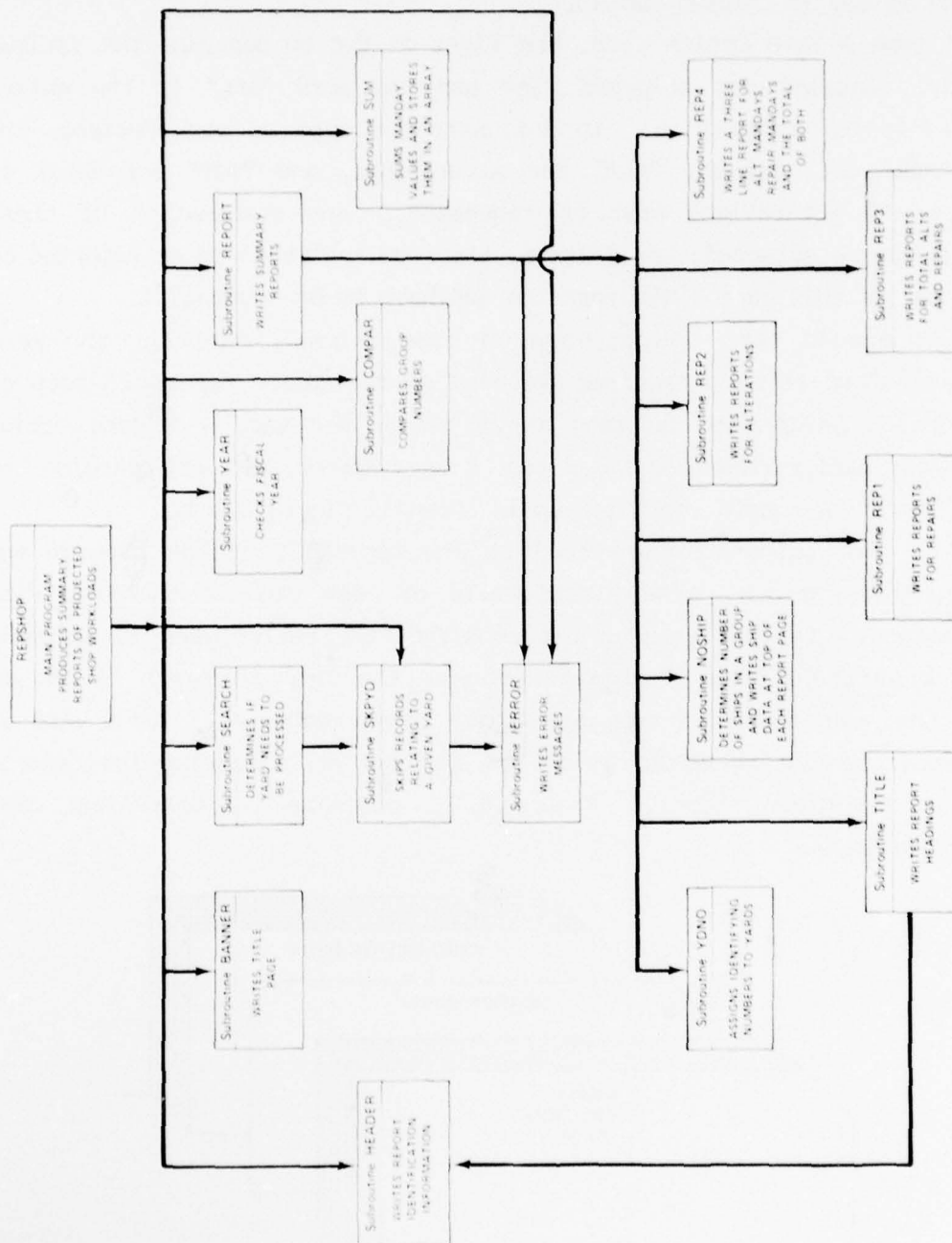


Figure 6.1-2 - REPSHOP Hierarchical Diagram

Main Program

The function of the main program is to collect data for summary reports of projected shop workloads for repairs, alterations, or the total of both. It uses as input the Shop File created by program XPLODE and input cards defining the report options. In addition, it creates a Group Definition Data Base from the Group Definition Card Deck.

Subroutine BANNER

This subroutine writes a title page with the words "SHOP REPORTS." The date and identifying information appear in the upper left corner.

Subroutine COMPAR

Subroutine COMPAR is called for each shop record whose fiscal year is among these requested. This subroutine compares the group numbers to be processed for a given shipyard with the array of group numbers in the Group Definition Data Base. If there is agreement, the ship type and hull number are examined to see that they fall within the lower and upper limits of any of the selected groupings. Matching group numbers are stored in the JGROUP array for use in subroutine REPORT. A flag is set if a match has been found and the data processing proceeds; otherwise an alternate return is made.

Subroutine HEADER

This subroutine writes report identification information in the upper left corner of each page and the page number on the right. Shop reports are identified by the number "61" followed by the yard number and type of report. Yard numbers are assigned in Subroutine YDNO and carried in the argument list as "ID."

The identifications for type of work are as follows:

- 01 for repairs
- 02 for alterations
- 03 for total of repairs and alterations
- 04 for all three options

Therefore 61-02-02 would represent a report of total alterations shop mandays for Long Beach.

Subroutine IERROR

Subroutine IERROR is called to indicate lack of data in any requested ship grouping. An error message is written on unit 7 and is not interspersed with the summary reports. When an end-of-file mark is encountered on the Shop File, a message is written and the program is terminated.

Subroutine NOSHIP

NOSHIP determines the number of ships in a given group and writes the ship type and hull numbers at the top of each report page.

Subroutine REPORT

Using the yard name, the options, and the arrays of data collected by other subroutines, subroutine REPORT extracts the data elements for the individual reports. Tests are made to ensure that there is data for each of the requested groups. If all work done in an entire yard has been calculated, it is stored as the first "group number" in the data array and must be extracted as such. The flag JOPT is used to determine the type of manday package required. When JOPT = 3, the manday values for repairs must be added to the manday values for alterations to give total mandays. The values for a given yard, group number, and year are transferred to the subroutines REP1, REP2, REP3, and REP4 for final output.

Subroutine REP1

Subroutine REP1 uses the repair mandays for a given yard, group number, and year as extracted by subroutine REPORT and writes them in a report format for repairs.

Subroutine REP2

Subroutine REP2 uses the alteration mandays for a given yard, group number, and year as extracted by subroutine REPORT and writes them in a report format for alterations.

Subroutine REP3

Subroutine REP3 uses the total of repairs and alteration mandays calculated in subroutine REPORT and presents them in a report format for total of alterations and repairs.

Subroutine REP4

Subroutine REP4 uses the alteration mandays, the repair mandays, and the total of repair and alteration mandays for a given yard, group number, and year and presents them as a three-line report.

Subroutine SEARCH

Subroutine SEARCH is used in determining whether a yard needs to be processed. The yard name read from the Shop File is compared with the array of yard names requested by input data. If there is no match, subroutine SKPYD is called to skip to the next yard and an alternate return is made.

Subroutine SKPYD

This subroutine is used to skip all records on the Shop File relating to a given yard. As each record is read, its yard name is compared to the name of the yard to be skipped. When a new yard name appears, the file is backspaced and the program continues.

Subroutine SUM

This subroutine sums the manday values and stores them according to group number and year in an array for repairs and an array for alterations. Subroutine SUM is called with one of three options: (1) to sum the values for given groups but not for an entire yard, (2) to sum the values for an entire yard but not for groups, (3) to sum the values for an entire yard as well as for given groups. Values are stored in two arrays, one for repairs and one for alterations. The first subscript refers to the group number, the second subscript refers to the year, and the third subscript refers to the 20 shops. If an entire yard is processed, the data for it are stored as the first "group number" in the array and later treated accordingly.

Subroutine TITLE

This subroutine is called by the subroutine REPORT with an argument designating identifying notation to be written with the data. The options are: (1) TOTAL DIRECT REPAIR MANDAYS BY SHOPS, (2) TOTAL DIRECT ALTERATION MANDAYS BY SHOPS, (3) TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOPS.

Subroutine YEAR

This subroutine checks the fiscal year for a given data record against the array of years requested by input. If there is no agreement, transfer is made to that portion of the program that reads the next data record from the Shop File.

Subroutine YDNO

Subroutine YDNO assigns a number to each yard for report identification. For example: Charleston is 01, Long Beach is 02. The subroutine argument "ID" is transferred to subroutine HEADER with this identifying number to be used for report identification.

6.1.2 RUN SET-UP

The following set-up is used to run the REPSHOP program on the IBM 360/370 computer:

```
//NVS RFPS JOB (XXXXXXXXXX,XXXXX),USFR,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOB LIA DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=RESHOP
//GO.FT05F001 DD *
```

REPSHOP card inputs (unit 5)

```
//GO.FT06F001 DD SYSOUT=A (SHOP REPORTS)
//GO.FT07F001 DD SYSOUT=A (ERROR MESSAGES)
//GO.FT11F001 DD DSN=NVS01.SHOP.EXPLODE.DATA,DISP=SHR (INPUT FILE)
```

6.1.3 INPUTS

Card inputs are made using unit 5. The format for these cards is shown in Section 6.1.3.1.

Unit 5 - Card inputs which (1) define ship groups by setting lower and upper limits on ship type and hull number, (2) give identifying report information, (3) set the desired options and years required, (4) determine which yards and groups are to be reported on.

The following additional unit is used to input information from a disk file created by the program XPLODE:

Unit 11 - Shop File

The format for this file is given in Section 6.1.3.2.

6.1.3.1 Unit 5 - Card Inputs

Group Definition Cards. The Group Definition Deck describes the various ship groupings. Two cards, a type A and a type B, are required to define each group. There may be as many as 100 groups. A group definition terminator card follows the last type B group definition card.

Type A Group Definition Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IGRPNO(I)	Group Number	1-3	I3
GRPDEF(I,1,1)	Ship Set 1 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GRPDEF(I,1,2)	Ship Set 1 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDEF(I,2,1)	Ship Set 2 Ship-Type/Hull-Number (Lower Bound)	33-40	A8
GRPDEF(I,2,2)	Ship Set 2 (Upper Bound)	44-51	A8
GRPDEF(I,3,1)	Ship Set 3 (Lower Bound)	57-64	A8
GRPDEF(I,3,2)	Ship Set 3 (Upper Bound)	68-75	A8

Type B Group Definition Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
GRPDEF(I,4,1)	Ship Set 4 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GRPDEF(I,4,2)	Ship Set 4 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDEF(I,5,1)	Ship Set 5 (Lower Bound)	33-40	A8
GRPDEF(I,5,2)	Ship Set 5 (Upper Bound)	44-51	A8
GRPDEF(I,6,1)	Ship Set 6 (Lower Bound)	57-64	A8
GRPDEF(I,6,2)	Ship Set 6 (Upper Bound)	68-75	A8

Group Definition Deck Terminator Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
Terminator	Terminator of Ship Group Definition Deck (any negative number)	1-3	I3

Identification Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
DATE	Date (mo/dy/yr)	1-12	3A4
COMMENT	Comment	15-34	5A4

Yard Option Cards. There are two cards for each required yard: a type A card which describes the options and years and a type B card for requesting the group numbers. A Yard Option terminator card follows the final type B Option card.

Type A Yard Option Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IYDSEL	Yard name	1-5	A5
ALL	The punch characters "ALL" will sum entire yard	8-10	A3
REP	The punch characters "REP" will compute repairs only	13-15	A3
ALT	The punch characters "ALT" will compute alterations only	18-20	A3
TOTAL	The punch characters "TOT" will compute total of repairs and alterations	23-25	A3
IYEAR(1)	2-digit year	30-31	I2
IYEAR(2)	2-digit year	33-34	I2
IYEAR(3)	2-digit year	36-37	I2
IYEAR(4)	2-digit year	39-40	I2
IYEAR(5)	2-digit year	42-43	I2

Type B Yard Option Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IYDSEL	Yard name	1-5	A5
IYDGRP(1-25)	Group numbers to be processed	7-80	15(1X,I2)

Yard Option Terminator Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
LAST	End card of input data	1-5	A5

Figure 6.1-1 gives an example of an input deck for REPSHOP.

6.1.3.2 Unit 11 - Shop File

The Shop File is a binary file, so the format presented is to be used as a guide to indicate the size of the variables. No Shop File is created for private yards. The following format is used for each record on the Shop File:

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
ISHULL	Ship type and hull number	1	(A8)
ITYPWK	Type work	2	(A3)
IYD	Yard	3	(A5)
IGROUP	Group number (set = 0)	4	(I3)
IFYR	Fiscal year (this record)	5	(I2)
OWN	Yard ownership indicator	6	(A1)
COAST	Coast	7	(A1)
IPERD	Period (this record)	8	(A1)
ICONT	Continuation indicator	9	(A1)
ISTRT	Availability start date (mo/dy/yr)	10	(I6)
IEND	Availability end date (mo/dy/yr)	11	(I6)
ISPEC	Specialization category	12	(A3)
SVALP(1-20)	Total direct repair mandays for shops	13-32	(20F10.2)
SVALA(1-20)	Total direct alteration mandays for shops	33-52	(20F10.2)
IDAYS	Production shop productive (PSP) mandays this period	53	(I7)
IPERCT	Percent of PSP mandays for alterations	54	(I3)

6.1.4 OUTPUTS

The following units are used by REPSHOP for generating hard-copy output:

Unit 6 - Summary shop reports

Unit 7 - Error messages

Section 6.1.7 shows a sample of these outputs.

6.1.5 PROGRAM LISTING

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C*****PROGRAM REPSHOP(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE11,
C*****1 TAPE7)
C
C    PROGRAMMER JEAN ST LAURENT  CODE 1863
C    WRITTEN JAN 1976
C    REPSHOP IS A REPORT GENERATOR FOR TOTAL DIRECT LABOR MANDAYS
C    BY SHOPS
C
C    SHOP DATA IS REPORTED FIRST BY YARD
C    WITHIN A YARD BY GROUP
C    AND WITHIN A GROUP BY YEAR
C
C    THERE ARE 4 OPTIONS FOR OUTPUT OF SHOP DATA
C    REPAIRS, ONLY          - INPUT AS REP - USED AS IOPT = 1
C    ALTS, ONLY            - INPUT AS ALT - USED AS IOPT = 2
C    TOTAL OF ALTS AND REPAIRS - INPUT AS TOT - USED AS IOPT = 3
C    REPAIRS, ALTS AND TOTALS - USED AS IOPT = 4
C
C    DATA MAY BE PRODUCED FOR SELECTED GROUPS OF SHIP CLASSES
C    THERE IS ALSO A PROVISION TO SUM ALL DATA FOR A YARD
C    IALL = 1
C
C    DATA IS REPORTED BY YEAR AND THE YEARS REQUIRED
C    ARE INPUT AS - IYEAR
C
C    TAPE ASSIGNMENTS
C    TAPE5 - INPUT - CARDS
C    TAPE6 - OUTPUT
C    TAPE7 - OUTPUT - ERRORS, ONLY
C    TAPE11 - INPUT OF SHOP DATA FILE CREATED BY PROGRAM XPLODE
C
C    REAL*8 GRPDEF, IYDSEL, IYD, LAST,IYDP, ISHULL, DBLANK
C
C    INTEGER GRPDEF
C    COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15)
C    COMMON/WORK/ ARRAYR(25,5,20),ARRAYA(25,5,20),SVALR(20), SVALA(20)
C    COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)
C    COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)
C    COMMON/IDENT/COMENT(5), DATE(3)
C    COMMON/VAL/VALR(20), VALA(20), VALT(20)
C    DIMENSION NYEARS(15), IYEAR(15,5), IYDTR(5)
C    DIMENSION IGRPNO(100),NGRPS(25), IALL(15), IOPT(15)
C
C    DATA LAST/5HLAST /
C    DATA ZREP/3HREP/
C    DATA ZALT/3HALT/
C    DATA ZTOT/3HTOT/
C    DATA ZALL/3HALL/
C    DATA DBLANK/8H /
C
C    INITIAL CONDITIONS
C    IYDP = DBLANK
C
C    ZERO OUT ARRAYS

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**** 10
**** 20
REPS 30
REPS 50
REPS 60
REPS 61
REPS 62
REPS 63
REPS 64
REPS 65
REPS 66
REPS 70
REPS 80
REPS 90
REPS 100
REPS 110
REPS 120
REPS 130
REPS 140
REPS 150
REPS 160
REPS 170
REPS 180
REPS 190
REPS 200
REPS 210
REPS 220
REPS 230
REPS 240
REPS 250
REPS 260
REPS 270
**** 280
REPS 290
REPS 300
REPS 320
REPS 330
REPS 350
REPS 360
REPS 370
REPS 380
REPS 390
REPS 410
REPS 450
REPS 460
REPS 470
REPS 480
REPS 490
REPS 500
REPS 503
REPS 510
REPS 520
REPS 530
REPS 540
REPS 550

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DO 15 I = 1, 25	REPS 560
DO 10 J = 1, 15	REPS 570
DO 5 K = 1, 5	REPS 580
IYDGRP(J,I) = 0	REPS 590
IYDSEL(J) = DBLANK	REPS 600
NGRPS(I) = 0	REPS 610
IYEAR(J,K) = 0	REPS 620
5 CONTINUE	REPS 630
10 CONTINUE	REPS 640
15 CONTINUE	REPS 650
C	REPS 660
C READ GROUP DEFINITION CARD DECK.	REPS 670
C	REPS 680
DO 30 I = 1, 100	REPS 690
READ(5,100) IGRPNO(I), (GRPDEF(I,J,1),GRPDEF(I,J,2),J=1,3),	REPS 710
1 IGRPNO(I), ((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=1,3)	REPS 720
100 FORMAT(I3, 3(5X,A8,3X,A8), T1,I3, T9,A4, T13,A4, T20,A4,T24,A4,	REPS 730
1 T33,A4, T37,A4, T44,A4, T48,A4, T57,A4, T61,A4, T68,A4, T72,A4)	REPS 740
C	REPS 750
C TEST FOR TERMINATOR	REPS 760
C	REPS 770
IF(IGRPNO(I).LT.0) GO TO 35	REPS 780
READ(5,100) IDUMNY, (GRPDEF(I,J,1),GRPDEF(I,J,2),J=4,6),	REPS 790
1 IDUM1, ((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=4,6)	REPS 800
C	REPS 805
C THIS SECTION REPLACES BLANKS WITH ZEROS (FOR CDC ONLY)	REPS 810
C*****DO 25 J = 1,6	**** 820
C*****DO 20 K = 1,2	**** 830
C*****GRPDEF(I,J,K) = ICBZ(GRPDEF(I,J,K))	**** 840
C**20 CONTINUE	**** 850
C**25 CONTINUE	**** 860
30 CONTINUE	REPS 870
C	REPS 880
C READ HEADER CARD	REPS 890
C	REPS 900
35 READ(5,101) DATE, (COMENT(I),I=1,5)	REPS 910
101 FORMAT(3A4, 2X, 5A4)	REPS 920
C	REPS 930
C READ YARD CARDS WITH OPTIONS AND REQUIRED YEARS	REPS 940
C	REPS 950
DO 40 I = 1, 15	REPS 960
III = I	REPS 970
READ(5,102) IYDSEL(I), ALL, REP,ALT,TOTAL, (IYEAR(I,J),J=1,5)	REPS 980
102 FORMAT(A5, 4(2X,A3), 4X, 5(I2,1X))	REPS 990
IF(IYDSEL(I).EQ.LAST) GO TO 45	REPS1000
C	REPS1010
C SET FLAG FOR VARIOUS OPTIONS	REPS1020
C	REPS1030
IOPT(I) = 0	RESP1035
IALL(I) = 0	REPS1038
IF(REP.EQ.ZREP) IOPT(I) = 1	REPS1040
IF(ALT.EQ.ZALT) IOPT(I) = 2	REPS1050
IF(TOTAL.EQ.ZTOT) IOPT(I) = 3	REPS1060
IF(REP.EQ.ZREP .AND. ALT.EQ.ZALT .AND. TOTAL.EQ.ZTOT) IOPT(I)=4	REPS1070
IF(ALL.EQ.ZALL) IALL(I) = 1	REPS1080
C	REPS1085
C READ GROUP SELECTION CARDS GIVING WHICH OF THE GROUP	REPS1090
C NUMBERS (IGRPNO) ARE TO BE PROCESSED FOR EACH YARD	REPS1100
C THIS CARD IS THE 2ND OF THE PAIR WITH YARD SELECTION CARD	REPS1110
C	REPS1120

READ(5,103) IYDSEL(I), (IYDGRP(I,J),J=1,25)	REPS1130
103 FORMAT(45, 25(1X,I2))	REPS1140
40 CONTINUE	REPS1150
NYDS = III	REPS1160
GO TO 48	REPS1170
45 NYDS = III - 1	REPS1180
48 IDONE = NYDS	REPS1190
C	REPS1195
C DETERMINE NUMBER OF GROUPS PER YARD TO BE PROCESSED	REPS1200
DO 60 I = 1, NYDS	REPS1210
DO 50 J = 1, 25	REPS1220
JJ = J	REPS1230
IF(IYDGRP(I,J) .EQ. 0) GO TO 55	REPS1240
50 CONTINUE	REPS1250
NGRPS(I) = JJ	REPS1260
GO TO 60	REPS1270
55 NGRPS(I) = JJ - 1	REPS1280
60 CONTINUE	REPS1290
C	REPS1300
C DETERMINE NUMBER OF YEARS (NYEARS) TO BE PROCESSED FOR EACH YARD	REPS1310
C	REPS1320
DO 75 I = 1, NYDS	REPS1330
DO 65 J = 1, 5	REPS1340
JJ = J	REPS1350
IF(IYEAR(I,J) .EQ. 0) GO TO 70	REPS1360
65 CONTINUE	REPS1370
NYEARS(I) = JJ	REPS1380
GO TO 75	REPS1390
70 NYEARS(I) = JJ - 1	REPS1400
75 CONTINUE	REPS1410
CALL HEADER(1, IDUM2, IDUM2)	REPS1420
CALL BANNER	REPS1430
C	REPS1440
C INITIALIZE FLAGS FOR EACH YARD AND ZERO OUT ARRAYS	REPS1450
80 IFIRST = 0	REPS1460
DO 95 I = 1, 25	REPS1470
DO 90 J = 1, 5	REPS1480
DO 85 K = 1, 20	REPS1490
ARRAYR(I,J,K) = 0.0	REPS1500
ARRAYA(I,J,K) = 0.0	REPS1510
MGROUP(I) = 0	REPS1520
KGROUP(I) = 0	REPS1530
JGROUP(I) = 0	REPS1535
IYDYR(J) = 0	REPS1540
85 CONTINUE	REPS1550
90 CONTINUE	REPS1560
95 CONTINUE	REPS1570
C	REPS1580
C	REPS1590
C READ SHOP RECORD	REPS1600
C*200 READ(11) ISHULL, IYPMK, IYD, IGROUP, IFYR, OWN, COAST, IPERD,	****1610
C****1 ICONT, ISTRT, IEND, ISPEC, (SVALR(K),K=1,20), (SVALA(K),K=1,20),	****1620
C****2 IDAYS, IPERCT	****1630
200 READ(11,END=255) ISHULL, IYPMK, IYD, IGROUP, IFYR, OWN, COAST, IPERD,	****1640
1 ICONT, ISTRT, IEND, ISPEC, (SVALR(K),K=1,20), (SVALA(K),K=1,20),	****1650
2 IDAYS, IPERCT	****1660
C*****IF(EOF(11) .NE. 0) GO TO 255	****1670
IF(IFIRST.EQ.0) GO TO 210	REPS1680
DO 205 I = 1, 25	REPS1690
MGROUP(I) = 0	REPS1700

205 CONTINUE	REPS1710
IF(IYDP.NE.IYD) GO TO 250	REPS1720
GO TO 230	REPS1730
210 IFIRST = 1	REPS1740
IYOP = IYD	REPS1750
C	REPS1760
C SEE IF THIS YARD NEEDS TO BE PROCESSED	REPS1770
C	REPS1780
C*215 CALL SEARCH(IYD,NYDS,II), RETURNS(80)	****1790
215 CALL SEARCH(IYD,NYDS,II, \$80)	****1800
C	REPS1810
C	REPS1820
C SET OPTION FOR THIS YARD	REPS1830
JOPT = IOPT(II)	REPS1840
C IF ALL RECORDS ARE TO BE PROCESSED, SET KOPT	REPS1850
KOPT = IALL(II)	REPS1860
C	REPS1870
C DETERMINE ARRAY OF YEARS PER YARD (IYDYR)	REPS1880
C	REPS1890
MYEAR = NYEARS(II)	REPS1900
DO 220 K = 1, MYEAR	REPS1910
IYDYR(K) = IYEAR(II, K)	REPS1920
220 CONTINUE	REPS1930
C	REPS1940
C DETERMINE NUMBER OF GROUPS FOR THIS YARD (NGROUP)	REPS1950
C	REPS1960
NGROUP = NGRPS(II)	REPS1970
IF(NGROUP.EQ.0) GO TO 230	REPS1980
DO 225 K = 1, NGROUP	REPS1990
KGROUP(K) = IYDGRP(II, K)	REPS2000
225 CONTINUE	REPS2010
C	REPS2020
C CHECK TO SEE IF THIS YEARS DATA IS REQUIRED	REPS2030
C	REPS2040
230 CALL YEAR(IFYR, IYDYR,\$200)	****2050
C*230 CALL YEAR(IFYR, IYDYR), RETURNS(200)	****2060
C IF THERE IS NO MATCH ON YEAR, READ NEXT SHOP RECORD	REPS2070
IF(NGROUP.GT.0) GO TO 240	REPS2080
C	REPS2090
C IF NO GROUPS ARE TO BE PROCESSED, CHECK ON ENTIRE YARD	REPS2100
C	REPS2110
IF(KOPT.EQ.1) GO TO 235	REPS2120
CALL SKPYD(IYD)	REPS2130
GO TO 80	REPS2140
C	REPS2150
C IF NO GROUPS HAVE BEEN SELECTED FOR THIS YARD BUT ENTIRE YARD	REPS2160
C IS TO BE PROCESSED - CALL SUM	REPS2170
C	REPS2180
235 KK = 1	REPS2190
CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)	REPS2200
GO TO 200	REPS2210
C	REPS2220
C CHECK ON GROUP NUMBERS TO BE PROCESSED	REPS2225
C	REPS2250
C*240 CALL COMPAR(ISHULL,IGRPNO,NGROUP), RETURNS(242)	****2260
240 CALL COMPAR(ISHULL,IGRPNO,NGROUP, \$242)	****2270
C	REPS2280
C IN ADDITION TO GROUPS, ENTIRE YARD IS TO BE PROCESSED	REPS2290
IF(KOPT.EQ.1) GO TO 245	REPS2300
KK = 0	REPS2310

	CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)	REPS2320
	GO TO 200	REPS2330
C	IF THERE IS NO MATCH ON GROUP NUMBER, CHECK IF ENTIRE	REPS2331
C	YARD IS TO BE PROCESSED	REPS2332
	242 IF(KOPT.EQ.1) GO TO 235	REPS2340
	GO TO 200	REPS2350
	245 KK = 2	REPS2360
	CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)	REPS2370
	GO TO 200	REPS2380
C		REPS2385
C	AT END OF YARD, PROCESS DATA FOR THAT YARD	REPS2390
	250 CONTINUE	REPS2400
C		REPS2410
C	REPORT IS THE REPORT SUMMARIZER FOR REPAIRS, ONLY	REPS2420
C	ALTS, ONLY	REPS2430
C	TOTAL OF REPAIRS AND ALTS	REPS2440
		REPS2450
C	CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYDYR, KOPT)	REPS2460
		REPS2470
	IDONE = IDONE - 1	REPS2480
	IF(IDONE.EQ.0) STOP	REPS2490
	BACKSPACE 11	REPS2492
	GO TO 80	REPS2494
C		REPS2500
C	END OF FILE MARK READ - PROCESS DATA	REPS2501
	255 CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYDYR, KOPT)	REPS2502
	CALL IERROR(1,IDUM,IYDP)	REPS2504
	STOP	REPS2510
	END	REPS2520

C*****SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP), RETURNS(NONE)	**** 10
SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP,*)	**** 20
C	COMP 21
C SUBROUTINE TO DETERMINE IF THIS SHIP TYPE AND HULL NUMBER	COMP 22
C FALL WITHIN THE RANGE OF A REQUESTED SHIP GROUPING	COMP 23
C	COMP 24
INTEGER GRPDEF	COMP 30
REAL*8 GRPDEF, IYSEL, IYO, ISHULL	**** 40
COMMON/IDATA/ GRPDEF(100,6,2), IYSEL(15)	COMP 50
COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), NGROUP(25)	COMP 70
DIMENSION IGRPNO(100)	COMP 90
C	COMP 100
IFLAG = 0	COMP 110
C	COMP 120
C CHECK GROUP NUMBERS TO BE PROCESSED FOR THIS YARD(KGROUP)	COMP 130
C AGAINST GROUP NUMBER OF GROUP DEFINITION DATA BASE (IGRPNO)	COMP 140
DO 40 K = 1, NGROUP	COMP 170
DO 30 I = 1,100	COMP 190
IF(IGRPNO(I) .NE. KGROUP(K)) GO TO 30	COMP 200
C	COMP 210
C CHECK SHIP AND HULL RANGE	COMP 220
DO 20 J = 1,6	COMP 230
C**** IF(ISHULL.GE. GRPDEF(I,J,1) .AND. ISHULL.LE.GRPDEF(I,J,2))	COMP 240
C****1 GO TO 10	**** 250
C REVERSE THE TEST ON THE 360	COMP 252
IF(ISHULL.LE. GRPDEF(I,J,1) .AND. ISHULL.GE.GRPDEF(I,J,2))	**** 254
1 GO TO 10	**** 256
GO TO 20	COMP 260
C	COMP 270
C NGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS RECORD	COMP 280
C JGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS YARD	COMP 290
C	COMP 300
10 MGROUP(K) = IGRPNO(I)	COMP 310
JGROUP(K) = MGROUP(K)	COMP 320
IFLAG = 1	COMP 330
20 CONTINUE	COMP 340
30 CONTINUE	COMP 350
40 CONTINUE	COMP 360
IF(IFLAG.EQ.1) RETURN	COMP 370
C	COMP 380
C IF NONE OF THE GROUP NUMBERS MATCH, ALTERNATE RETURN THAT	COMP 390
C CHECKS ON PROCESSING ENTIRE YARD	COMP 400
C*****RETURN NONE	**** 410
RETURN 1	**** 420
END	COMP 430

C	SUBROUTINE HEADER(NOPG, ID, JOPT)	HEAD 10
C		HEAD 20
C	SUBROUTINE TO WRITE REPORT IDENTIFICATION AND NUMBER PAGES	HEAD 30
	COMMON/IDENT/COMENT(5), DATE(3)	HEAD 40
	IF(NOPG.GT.1) GO TO 10	HEAD 50
	IPAGE = 0	HEAD 60
	WRITE(6,100) DATE,COMENT	HEAD 70
100	FORMAT(1H1, 2X, 4HDATE, 2X, 3A4, /, 3X, 5A4)	HEAD 80
	RETURN	HEAD 90
10	IF(ID.NE.IDP) IPAGE = 0	HEAD 100
	IPAGE = IPAGE + 1	HEAD 110
	IDP = ID	HEAD 120
	WRITE(6,101) ID,JOPT,DATE,IPAGE,COMENT	HEAD 130
101	FORMAT(1H1, 2X, 12HREPORT: 61-0, I1, 1H-, I1, 2X, 5HDATE: 1X,	HEAD 140
1	3A4, 80X, 4HPAGE, I4, / 3X, 5A4)	HEAD 150
	RETURN	HEAD 160
	END	HEAD 170
		HEAD 180

C	SUBROUTINE IERROR(N, IDUMMY, IDBL)	IERR 10
C		IERR 20
C	SUBROUTINE TO PRINT ERROR MESSAGES	IERR 30
	REAL*8 IDBL	IERR 35
C		**** 40
	GO TO (10,20,30), N	IERR 45
10	WRITE(7,100) IDBL	IERR 50
100	FORMAT(1X, 37H * * END OF FILE ENCOUNTERED IN YARD , A5)	IERR 60
	STOP	IERR 70
20	WRITE(7,101) IDBL	IERR 80
101	FORMAT(1X, 53H * * * ERROR IN GROUP NUMBERS - NO MATCH FOR YARD ,	IERR 90
1	A5)	IERR 100
	RETURN	IERR 110
30	WRITE(7,102) IDUMMY, IDBL	IERR 120
102	FORMAT(1X, 25H * * * NO SHIPS IN GROUP , I3, 1X, 4HFOR , A5)	IERR 130
	RETURN	IERR 140
	END	IERR 150
		IERR 160

C	SUBROUTINE NOSHIP(JJ)	NOSH 10
C		NOSH 20
C	SUBROUTINE TO DETERMINE THE NUMBER OF SHIPS PER GROUP	NOSH 30
C	AND PRINT SHIP AND HULL VALUES	NOSH 40
C		NOSH 50
C	COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)	NOSH 70
C	REAL*8 ISHULL	NOSH 80
C		**** 90
		NOSH 100
	DATA IBLANK/4H	NOSH 110
	L = 1	NOSH 120
	DO 10 KK = 1, 6	NOSH 130
	KKK = KK	NOSH 140
	IF(ISHIP(JJ, KK, L) .EQ. IBLANK) GO TO 12	NOSH 150
	10 CONTINUE	NOSH 160
	GO TO 15	NOSH 165
	12 KKK = KKK - 1	NOSH 168
	15 IF(KKK.GT.3) GO TO 20	NOSH 170
	MM = KKK	NOSH 180
	WRITE(6,102) ((ISHIP(JJ, KK, L), IHULL(JJ, KK, L), L=1,2), KK=1, MM)	NOSH 190
	RETURN	NOSH 200
	20 MM = 3	NOSH 210
	WRITE(6,102) ((ISHIP(JJ, KK, L), IHULL(JJ, KK, L), L=1,2), KK=1, MM)	NOSH 220
	MM = KKK	NOSH 230
	WRITE(6,102) ((ISHIP(JJ, KK, L), IHULL(JJ, KK, L), L=1,2), KK=4, MM)	NOSH 240
	102 FORMAT(1H , 30X, 3(A4,1X,A4,1X,1H-,1X,A4,1X,A4,4X))	NOSH 250
	RETURN	NOSH 260
	END	NOSH 270

C	SUBROUTINE REPORT(IYD, NGROUP, MYEAR, JOPT, IYDNR, KOPT)	REPT 10
C		REPT 20
C	SUBROUTINE TO PROCESS DATA FOR REPAIRS, ALTS,	REPT 30
C	AND TOTAL OF REPAIRS AND ALTS	REPT 40
C		REPT 50
	REAL*8 IYD	**** 60
C		REPT 65
	COMMON/WORK/ ARRAYR(25,5,20),ARRAYA(25,5,20),SVALR(20), SVALA(20)	REPT 70
	COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)	REPT 90
	COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)	REPT 100
	COMMON/VAL/VALR(20), VALA(20), VALT(20)	REPT 110
	DIMENSION IYDNR(5)	REPT 120
C		REPT 130
C		REPT 140
C	ASSIGN YARD NUMBER FOR REPORT IDENTIFICATION	REPT 150
C		REPT 160
	CALL YDNO(IYD, ID)	REPT 170
C		REPT 180
C	IF ENTIRE YARD HAS BEEN PROCESSED (KOPT = 1) IT IS	REPT 190
C	STORED AS THE 1ST GROUP IN THE ARRAY	REPT 200
C		REPT 210
	IF(KOPT.NE.1) GO TO 5	REPT 220
	NGROUP = NGROUP + 1	REPT 230
C		REPT 240
C		REPT 250
C	NGROUP IS THE NUMBER OF GROUPS FOR THIS YARD	REPT 260
C	JGROUP IS THE ARRAY OF GROUP NUMBERS THAT MATCH	REPT 270
C	FOR THIS YARD	REPT 280
C		REPT 290
	5 DO 80 J = 1,NGROUP	REPT 300
C		REPT 310
C	TEST IF ENTIRE YARD (BUT NO GROUPS) IS TO BE PROCESSED	REPT 320
	IF(NGROUP.EQ.1) GO TO 10	REPT 330
	IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 10	REPT 334
	LL = J - KOPT	REPT 336
	JJ = JGROUP(LL)	REPT 340
C		REPT 350
C	CHECK IF THERE ARE MATCHING SHIPS IN EACH REQUIRED GROUP	REPT 360
C		REPT 370
	IF(JJ.NE.0) GO TO 10	REPT 380
	KK = KGROUP(LL)	REPT 390
	CALL IERROR(3,KK,IYD)	REPT 400
	GO TO 80	REPT 410
	10 CALL TITLE(JOPT, ID)	REPT 420
	WRITE(6,100) IYD	REPT 430
	100 FORMAT(1H , 60X, 5HYARD1, 1X, A5, /)	REPT 440
	IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 15	REPT 450
	WRITE(6,101) JGROUP(LL)	REPT 460
	101 FORMAT(1H , 44X, 24HSUMMATION FOR GROUP NO. , I2,	REPT 470
	1 16H - CONSISTING OF)	REPT 480
	IF(JOPT.EQ.4) GO TO 12	REPT 482
	WRITE(6,105)	REPT 484
C		REPT 490
C	DETERMINE THE NUMBER OF SHIPS PER GROUP FOR PRINTOUT	REPT 500
C		REPT 510
	12 CALL NOSHIP(JJ)	REPT 520
	WRITE(6,105)	REPT 530
	105 FORMAT(1H)	REPT 540
	GO TO 20	REPT 550

15	WRITE(6,106)	REPT 560
106	FORMAT(1H , 51X, 20HSUMMATION FOR AN ENTIRE YARD, /)	REPT 570
C		REPT 580
C		REPT 590
C	MYEAR IS THE NUMBER OF YEARS FOR THIS YARD	REPT 600
C		REPT 610
20	DO 75 I = 1, MYEAR	REPT 620
C		REPT 630
C	JOPT = 1 COMPUTE REPAIRS, ONLY	REPT 640
C	JOPT = 2 COMPUTE ALTS, ONLY	REPT 650
C	JOPT = 3 COMPUTE TOTAL OF REPAIRS AND ALTS	REPT 660
C	JOPT = 4 COMPUTE REPAIRS, ALTS, AND TOTAL	REPT 670
C		REPT 680
	GO TO (25,35,45,25), JOPT	REPT 690
25	DO 30 L = 1, 20	REPT 700
	VALR(L) = ARRAYR(J,I,L)	REPT 710
30	CONTINUE	REPT 720
	IF(JOPT.EQ.4) GO TO 35	REPT 730
	GO TO 55	REPT 740
35	DO 40 L = 1, 20	REPT 750
	VALA(L) = ARRAYA(J,I,L)	REPT 760
40	CONTINUE	REPT 770
	IF(JOPT.EQ.4) GO TO 45	REPT 780
	GO TO 55	REPT 790
45	DO 50 L = 1, 20	REPT 800
	VALT(L) = ARRAYR(J,I,L) + ARRAYA(J,I,L)	REPT 810
50	CONTINUE	REPT 820
55	IF(I.EQ.4) GO TO 60	REPT 830
	GO TO 70	REPT 840
60	CALL TITLE(JOPT,ID)	REPT 850
	WRITE(6,100) IYD	REPT 860
	IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 65	REPT 870
	WRITE(6,101) JGROUP(LL)	REPT 880
	IF(JOPT.EQ.4) GO TO 62	REPT 882
	WRITE(6,105)	REPT 884
62	CALL NOSHIP(JJ)	REPT 890
	WRITE(6,105)	REPT 900
	GO TO 70	REPT 910
65	WRITE(6,106)	REPT 920
70	WRITE(6,107) IYDVR(I)	REPT 930
107	FORMAT(1H , 60X, 9HFISCAL 19, I2,/, T62, 11H-----, /)	REPT 940
	IF(JOPT.EQ.1) CALL REP1	REPT 950
	IF(JOPT.EQ.2) CALL REP2	REPT 960
	IF(JOPT.EQ.3) CALL REP3	REPT 970
	IF(JOPT.EQ.4) CALL REP4	REPT 980
75	CONTINUE	REPT 990
80	CONTINUE	REPT 1000
	RETURN	REPT 1010
	END	REPT 1020

C	SUBROUTINE REP1	REP1 10
C		REP1 20
C	SUBROUTINE TO PRINT REPAIR VALUES	REP1 30
		REP1 40
	COMMON/VAL/VALR(20), VALA(20), VALT(20)	REP1 50
	DIMENSION ISHP(19)	REP1 60
	DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,	REP1 70
	1 71, 72, 81, 94, 99, 3HOTH /	REP1 80
C		REP1 81
	TOTR = 0.	REP1 82
	DO 10 I = 1,20	REP1 83
	TOTR = TOTR + VALR(I)	REP1 84
	10 CONTINUE	REP1 85
	WRITE(6,100) (ISHP(K),K=1,10), (VALR(M),M=1,10),	REP1 90
	1 (ISHP(K), K=11,19), (VALR(M),M=11,12), (VALR(N),N=14,20), TOTR	REP1 100
100	FORMAT(1H ,18X,10(1X,6HSHOP1 ,I2,1X)/T20,10(1X,2(4H----), 1X) /,	REP1 110
	1 2X, 14HREPAIR MANDAYS, 3X, 10(F9.0,1X), ///T20, 8(1X,6HSHOP1 ,	REP1 120
	2 I2,1X), (3X,A4),5X,5HTOTAL, /, T20,10(1X,2(4H----), 1X)/, 2X,	REP1 130
	3 14HREPAIR MANDAYS, 3X, 10(F9.0,1X) ///)	REP1 140
	RETURN	REP1 150
	END	REP1 160

C	SUBROUTINE REP2	REP2 10
C		REP2 20
C	SUBROUTINE TO PRINT ALT VALUES	REP2 30
		REP2 40
	COMMON/VAL/VALR(20), VALA(20), VALT(20)	REP2 50
	DIMENSION ISHP(19)	REP2 60
	DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,	REP2 70
	1 71, 72, 81, 94, 99, 3HOTH /	REP2 80
C		REP2 81
	TOTA = 0.	REP2 82
	DO 10 I = 1,20	REP2 83
	TOTA = TOTA + VALA(I)	REP2 84
	10 CONTINUE	REP2 85
	WRITE(6,100) (ISHP(K),K=1,10), (VALA(M),M=1,10),	REP2 90
	1 (ISHP(K), K=11,19), (VALA(M),M=11,12), (VALA(N),N=14,20), TOTA	REP2 100
100	FORMAT(1H ,22X,10(1X,6HSHOP1 ,I2,1X)/T24,10(1X,2(4H----), 1X) /,	REP2 110
	1 2X, 18HALTERATION MANDAYS, 3X, 10(F9.0,1X),/// T24,	REP2 120
	2 8(1X,6HSHOP1 ,I2,1X), (3X,A4), 5X,5HTOTAL/,	REP2 130
	3 T24,10(1X,2(4H----), 1X)/, 2X,	REP2 135
	3 18HALTERATION MANDAYS, 3X, 10(F9.0,1X) ///)	REP2 140
	RETURN	REP2 150
	END	REP2 160

C	SUBROUTINE REP3	REP3 10
C		REP3 20
C	SUBROUTINE TO PRINT TOTAL OF REPAIR AND ALT VALUES	REP3 30
	COMMON/VAL/VALR(20), VALA(20), VALT(20)	REP3 40
	DIMENSION ISHP(19)	REP3 50
	DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,	REP3 60
	1 71, 72, 81, 94, 99, JNOTH /	REP3 70
C		REP3 80
	TOT = 0.	REP3 81
	DO 10 I = 1,20	REP3 82
	TOT = TOT + VALT(I)	REP3 83
	10 CONTINUE	REP3 84
	WRITE(6,100) (ISHP(K),K=1,10), (VALT(N),N=1,10),	REP3 85
	1 (ISHP(K), K=11,19), (VALT(N),N=11,12), (VALT(N),N=14,20),TOT	REP3 90
	100 FORMAT(1H ,22X,10(1X,6MSHOP: ,I2,1X) /	REP3 100
	1 5X, 12MTOTAL REPAIR, 6X, 10(1X,2(4H----), 1X) /,	REP3 110
	2 3X, 16HAND ALT. HANDAYS, 4X, 10(F9.0,1X), ///, Y24,	REP3 120
	3 8(1X,6MSHOP: ,I2,1X), (3X,A4), 5X, 5MTOTAL /,	REP3 130
	4 5X, 12MTOTAL REPAIR, 6X, 10(1X,2(4H----), 1X) /,	REP3 140
	5 3X, 16HAND ALT. HANDAYS, 4X, 10(F9.0,1X), ///)	REP3 150
	RETURN	REP3 160
	END	REP3 170
		REP3 180

	SUBROUTINE REP4	REP4 10
C		REP4 20
C	SUBROUTINE TO PRINT REPAIR VALUES, ALT VALUES AND TOTAL OF	REP4 30
C	ALTS AND REPAIRS	REP4 40
C		REP4 50
	COMMON/VAL/VALR(20), VALA(20), VALT(20)	REP4 60
	DIMENSION ISHP(19)	REP4 70
	DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,	REP4 70
	1 71, 72, 81, 94, 99, 3HOTH /	REP4 79
C		REP4 80
C**10	READ(11) ISHULL, ITYPWK, IYO	**** 70
	TOTR = 0.	REP4 81
	TOTA = 0.	REP4 82
	TOT = 0.	REP4 83
	DO 10 I = 1,20	REP4 84
	TOTR = TOTR + VALR(I)	REP4 85
	TOTA = TOTA + VALA(I)	REP4 86
	TOT = TOT + VALT(I)	REP4 87
10	CONTINUE	REP4 88
	WRITE(6,100) (ISHP(K),K=1,10), (VALR(M),M=1,10)	REP4 100
100	FORMAT(1H , 22X,10(1X,6HSHOP: , I2,1X) /, T24, 10(1X, 2(4H----),1X)	REP4 110
1	/, 2X, 14HREPAIR MANDAYS, 7X, 10(F9.0,1X))	REP4 120
	WRITE(6,101) (VALA(M),M=1,10)	REP4 130
101	FORMAT(1H , 1X, 18HALTERATION MANDAYS, 3X, 10(F9.0,1X))	REP4 140
	WRITE(6,102) (VALT(M),M=1,10)	REP4 150
102	FORMAT(1H 1X, 13HTOTAL MANDAYS, 8X, 10(F9.0,1X),//)	REP4 160
	WRITE(6,103) (ISHP(K), K=11,19), (VALR(M), M=11,12),	REP4 170
1	(VALR(N),N=14,20), TOTR	REP4 175
103	FORMAT(1H , 22X, 8(1X,6HSHOP: , I2,1X) , 3X,A4, 5X,5HTOTAL/,	REP4 180
1	T24, 10(1X,2(4H----),1X) /, 2X, 14HREPAIR MANDAYS,	REP4 190
2	7X, 10(F9.0,1X))	REP4 200
	WRITE(6,101) (VALA(M),M=11,12), (VALA(N),N=14,20), TOTA	REP4 210
	WRITE(6,102) (VALT(M), M=11,12), (VALT(N),N=14,20), TOT	REP4 220
	RETURN	REP4 230
	END	REP4 240

C*****SUBROUTINE SEARCH(IYD,NYDS,III), RETURNS(MOYD)	**** 10
SUBROUTINE SEARCH(IYD,NYDS,III,*)	**** 20
INTEGER GRPDEF	SEAR 40
C	SEAR 25
REAL*8 GRPDEF, IYDSEL, IYD	**** 30
C	SEAR 35
COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15)	SEAR 60
C	SEAR 70
C	SEAR 80
SUBROUTINE TO DETERMINE IF THIS YARD NEEDS TO BE PROCESSED	SEAR 90
C	SEAR 100
5 DO 10 III = 1,NYDS	SEAR 110
IF(IYD.EQ. IYDSEL(III)) RETURN	SEAR 120
10 CONTINUE	SEAR 130
C	SEAR 140
IF THIS YARD ISNT REQUIRED, SKIP TO NEXT YARD	SEAR 150
C	**** 160
C*****RETURN MOYD	**** 170
RETURN 1	SEAR 180
END	

SUBROUTINE SKPYD(IYD)	SKPY 10
C	SKPY 20
C	SKPY 30
C	SKPY 40
REAL*8 IYD, IYDP, ISHULL	**** 50
C	SKPY 55
IYDP = IYD	SKPY 60
10 READ(11) ISHULL, IYDPWK, IYD	SKPY 70
C*****IF(EOF(11).NE.0) GO TO 20	**** 80
10 READ(11,END=20) ISHULL, IYDPWK, IYD	**** 90
IF(IYD.EQ.IYDP) GO TO 10	SKPY 100
BACKSPACE 11	SKPY 110
RETURN	SKPY 120
20 CALL IERROR(1,IOUM,IYDP)	SKPY 130
END	SKPY 140

	SUBROUTINE SUM(NGROUP,IFYR,KK,IYDYS,KOPT)	SUNH 10
C		SUNH 20
C	SUBROUTINE TO SUM AND STORE SHOP ALT AND REPAIR DATA ACCORDING	SUNH 30
C	TO GROUP AND YEAR	SUNH 40
C		SUNH 50
	COMMON/WORK/ ARRAYR(25,5,20),ARRAYA(25,5,20),SVALR(20), SVALA(20)	SUNH 60
	COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)	SUNH 70
	DIMENSION IYDYS(5)	SUNH 80
C		SUNH 90
C	IF THE SUBROUTINE IS CALLED WITH	SUNH 100
C	KK = 0 DONT SUM ENTIRE YARD	SUNH 110
C	KK = 1 NO GROUPS, BUT SUM ENTIRE YARD	SUNH 120
C	KK = 2 SUM ENTIRE YARD IN ADDITION TO GROUPS	SUNH 130
C		SUNH 140
C		SUNH 150
C	CHECK YEAR WITH ARRAY OF YEARS REQUIRED FOR THIS YARD AND	SUNH 160
C	SAVE SUBSCRIPT	SUNH 170
	DO 10 I = 1,5	SUNH 180
	IF(IFYR.EQ.IYDYS(I)) GO TO 15	SUNH 190
	10 CONTINUE	SUNH 200
	15 KKK = KK + 1	SUNH 205
	GO TO (20,25,30), KKK	SUNH 210
	20 JJJ = 1	SUNH 220
	LLL = NGROUP	SUNH 230
	GO TO 35	SUNH 240
	25 JJJ = 1	SUNH 250
	LLL = 1	SUNH 260
	GO TO 35	SUNH 270
	30 JJJ = 1	SUNH 280
	LLL = MGROUP + 1	SUNH 290
C		SUNH 295
C	CHECK ARRAY OF MATCHED GROUP NUMBERS WITH ARRAY OF	SUNH 300
C	GROUP NUMBERS REQUIRED	SUNH 310
	35 DO 55 J = JJJ, LLL	SUNH 320
	IF(KKK.EQ.1) GO TO 40	SUNH 330
	IF(KKK.GE.1 .AND. J.EQ.1) GO TO 40	SUNH 335
	JJ = J - KOPT	SUNH 336
	IF(MGROUP(JJ).EQ. KGROUP(JJJ)) GO TO 40	SUNH 340
	GO TO 55	SUNH 350
C		SUNH 360
C	ARRAYR AND ARRAYA ARE DATA ARRAYS FOR REPAIRS AND ALTS	SUNH 370
C	WHERE J IS THE GROUP NUMBER, I IS THE YEAR	SUNH 380
C	AND L ARE THE 20 ITEMS OF DATA	SUNH 390
C		SUNH 400
	40 DO 50 L = 1, 20	SUNH 410
	ARRAYR(J,I,L) = ARRAYR(J,I,L) + SVALR(L)	SUNH 420
	ARRAYA(J,I,L) = ARRAYA(J,I,L) + SVALA(L)	SUNH 430
	50 CONTINUE	SUNH 440
	55 CONTINUE	SUNH 450
	RETURN	SUNH 500
	END	SUNH 510

C	SUBROUTINE TITLE (JOPT, ID)	TITL 10
C		TITL 11
C	SUBROUTINE TO WRITE REPORT TITLES	TITL 12
	COMMON/IDENT/COMENT(5), DATE(3)	TITL 13
	CALL HEADER(2, ID,JOPT)	TITL 20
	IF(JOPT.NE.1) GO TO 10	TITL 30
	WRITE(6,100)	TITL 40
	100 FORMAT(1H , 47X, 35HTOTAL DIRECT REPAIR MANDAYS BY SHOP, /)	TITL 50
	RETURN	TITL 60
	10 IF(JOPT.NE.2) GO TO 20	TITL 70
	WRITE(6,101)	TITL 80
	101 FORMAT(1H , 45X, 39HTOTAL DIRECT ALTERATION MANDAYS BY SHOP, /)	TITL 90
	RETURN	TITL 100
	20 IF(JOPT.NE.3) GO TO 30	TITL 110
	WRITE(6,102)	TITL 120
	102 FORMAT(1H , 40X, 50HTOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY	TITL 130
	1SHOP, /)	TITL 140
	30 IF(JOPT.NE.4) GO TO 40	TITL 150
	WRITE(6,102)	TITL 160
	40 RETURN	TITL 170
	END	TITL 180
		TITL 190

C	SUBROUTINE YDNO(IYD, ID)	YDNO 10
C		YDNO 20
C	SUBROUTINE TO ASSIGN A NUMBER TO EACH YARD FOR	YDNO 30
C	REPORT IDENTIFICATION	YDNO 40
	REAL*8 IYD, ICHASN, LBECH, MARE, NORVA, IPEARL, IPHILA, IPTSMH	YDNO 50
	1 IPUGET	**** 60
		**** 65
C	DATA ICHASN/5HCHASN/	YDNO 70
	DATA LBECH/5HLBECH/	YDNO 80
	DATA MARE/5HMARE /	YDNO 90
	DATA NORVA/5HNORVA/	YDNO 100
	DATA IPEARL/5HPEARL/	YDNO 110
	DATA IPHILA/5HPHILA/	YDNO 120
	DATA IPTSMH/5HPTSMH/	YDNO 130
	DATA IPUGET/5HPUGET/	YDNO 140
C	ID = 0	YDNO 150
	IF(IYD.EQ.ICHASN) ID = 1	YDNO 160
	IF(IYD.EQ.LBECH) ID = 2	YDNO 165
	IF(IYD.EQ.MARE) ID = 3	YDNO 170
	IF(IYD.EQ.NORVA) ID = 4	YDNO 180
	IF(IYD.EQ.IPEARL) ID = 5	YDNO 190
	IF(IYD.EQ.IPHILA) ID = 6	YDNO 200
	IF(IYD.EQ.IPTSMH) ID = 7	YDNO 210
	IF(IYD.EQ.IPUGET) ID = 8	YDNO 220
	RETURN	YDNO 230
	END	YDNO 240
		YDNO 250
		YDNO 260

C*****SUBROUTINE YEAR(IFYR,IYDYR), RETURNS(NOYEAR)	**** 10
SUBROUTINE YEAR(IFYR,IYDYR,*)	**** 20
C	YEAR 25
C SUBROUTINE TO SEE IF THE YEAR ON THIS DATA RECORD IS	YEAR 30
C ONE THAT NEEDS TO BE PROCESSED	YEAR 40
C	YEAR 50
C DIMENSION IYDYR(5)	YEAR 60
C	YEAR 70
DO 10 I = 1,5	YEAR 80
IF(IFYR.EQ.IYDYR(I)) RETURN	YEAR 90
10 CONTINUE	YEAR 100
C*****RETURN NOYEAR	**** 110
RETURN 1	**** 120
C	YEAR 125
C ALTERNATE RETURN GOES TO THE PLACE IN THE PROGRAM	YEAR 130
C THAT READS THE NEXT RECORD	YEAR 131
C END	YEAR 140

6.1.6 GLOSSARY

COMMON VARIABLES

Common Block/IDATA/

GRPDEF(100,6,2) Array of ship group definitions where the first subscript refers to the group number, the second to the ship type and hull number, and the third to (1) lower bound of a set and (2) upper bound of that set.

IYDSEL(15) Array of yards to be processed.

Common Block/IDENT/

COMENT(5) Array of report identification information.

DATE(3) Array containing the date of the run.

Common Block/MISC/

IYDGRP(15,25) Array of group numbers where the first subscript refers to the yard name and the second to the group number to be processed.

JGROUP(25) Array of matching group numbers for a specific yard.

KGROUP(25) Array of group numbers required for a specific yard.

MGROUP(25) Array of matching group numbers for a specific record.

Common Block/REP/

IHULL(100,6,2) Array of hull numbers where the first subscript refers to the group number, the second to the hull number, and the third to (1) a lower bound for a set and (2) an upper bound for that set.

ISHIP(100,6,2) Array of ship types where the first subscript refers to the group number, the second to the ship type, and the third to (1) a lower bound for a set and (2) an upper bound for that set.

Common Block/VAL/

VALA(20) Array of total direct alteration mandays for shops for a given yard.

VALR(20) Array of total direct repair mandays for shops for a given yard.

VALT(20) Array of the total of the repair and alteration mandays for a given yard.

Common Block/WORK/

ARRAYA(25,5,20) Array of alteration data where the first subscript refers to the ship group number, the second to the year, and the third to the 20 alteration mandays for shops.

ARRAYR(25,5,20) Array of repair data where the first subscript refers to the ship group number, the second to the year, and the third to the 20 repair mandays for shops.

SVALA(20) Array of total direct alteration mandays for shops for a given record.

SVALR(20) Array of total direct repair mandays for shops for a given record.

LOCAL VARIABLES

Main Program

ALL	Variable used to request the summary of data for an entire yard.
ALT	Variable used to request computation of alteration data.
COAST	Coast (east or west).
I	DO-loop index.
IALL(15)	Array used to determine whether the entire yard is to be summed.
ICONT	Continuation indicator.
IDAYS	Production shop productive (PSP) mandays for this period.
IDONE	Variable set equal to the number of yards required and decremented as each one is completed.
IDUMMY	Dummy variable used in reading the second of a pair of group definition cards.
IDUM1	Dummy variable used in re-reading group definition cards for print-out.
IDUM2	Dummy argument in subroutine HEADER.
IEND	Availability end date (mo/dy/yr).
IFIRST	Flag set to "1" after reading first record of a yard; otherwise set to "0".
IFYR	Fiscal year for this record.
IGROUP	Group number read from Shop File.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
II	Subscript designating specific yard.
III	Counter used to determine number of yards.
IOPT(15)	Array of options for a given yard.
IPERCT	Percent of PSP mandays for alterations.
IPERD	Period (this record).

Main Program (Continued)

ISHULL	Ship type and hull number, read as a single variable from the Shop File.
ISPEC	Specialization category.
ISTRT	Availability start date (mo/dy/yr).
ITYPWK	Type work.
IYD	Yard name read from Shop File.
IYDP	Name of yard (of previous record).
IYDYR(5)	Array of years for a specific yard.
IYEAR(15,5)	Array of years where the first subscript refers to the yard and the second to the year.
J	DO-loop index.
JJ	Counter used to determine the number of groups and years to be processed for a given yard.
JOPT	Option for a specific yard, which when set to "1", repairs are reported on; when set to "2", alterations are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are all reported on.
K	DO-loop index.
KK	Flag which when set to "0", groups are summed but not entire yard; when set to "1", entire yard is summed but not groups; when set to "2", entire yard and groups are summed.
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LAST	Variable containing the letters "LAST" and used in testing termination of input data.
MYEAR	Number of years to be processed for a specific yard.

Main Program (Continued)

NGROUP	Number of groups to be processed for a specific yard.
NGRPS(25)	Array of number of groups for a specific yard.
NYDS	Total number of yards to be processed.
NYEARS(15)	Array containing number of years to be processed.
OWN	Yard ownership indicator.
REP	Variable used to test for computing repair values.
TOTAL	Variable used to test for computing the total of repairs and alterations.
ZALL	Variable used to test for the characters "ALL".
ZALT	Variable used to test for the characters "ALT".
ZREP	Variable used to test for the characters "REP".
ZTOT	Variable used to test for the characters "TOT".

Subroutine COMPAR

I	DO-loop index.
IFLAG	Flag set to "1" after finding an agreement between the group numbers to be processed and the group numbers identifying group definition data base.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
ISHULL	Ship type and hull number.
J	DO-loop index.
K	DO-loop index.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine HEADER

ID	Identification number assigned to each yard.
IDP	Yard identification number (of previous record).
IPAGE	Variable used to increment page numbers.

Subroutine HEADER (Continued)

JOPT	Option for a specific yard, which when set to "1", repairs, only are reported on; when set to "2", alterations, only are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are all reported on.
NOPG	Flag set to "2" when pages are to be numbered, otherwise, set to "1".

Subroutine IERROR

IDBL	Double precision variable used to transfer yard names for error messages.
IDUMMY	Single precision variable used to transfer group numbers for error messages.
N	Error number.

Subroutine NOSHIP

IBLANK	4-character blank space.
JJ	Subscript designating a specific group number in the ISHIP and IHULL arrays.
KK	DO-loop index.
KKK	Subscript designating a specific ship type and hull number in the ISHIP and IHULL arrays.
L	Implied DO-loop index.
MM	Index used in I/O statements.

Subroutine REPORT

I	Index for fiscal year.
ID	Identification number assigned to a specific yard.
IYD	Yard name being processed.
IYDYR(5)	Array of years for a specific yard.
J	DO-loop index.
JJ	Flag for group number.

Subroutine REPORT (Continued)

JOPT	An option for a specific yard when set to "1", repairs only are reported on; when set to "2", alterations, only are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are reported on.
KK	Group number requested for which there was no data.
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LL	Index for group number of interest.
MYEAR	Number of years to be processed for a specific yard.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine REPl

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine REP2

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine REP3

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine REP4

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine SEARCH

III	Argument used in transferring subscript of required yard.
IYD	Yard name being processed.
NYDS	Total number of yards to be processed.

Subroutine SKPYD

IDUM	Dummy argument in IERROR subroutine.
ISHULL	Ship type and hull number.
ITYPWK	Type work.
IYD	Yard name.
IYDP	Yard name (of previous record).

Subroutine SUM

I	DO-loop index.
IFYR	Fiscal year for this record.
IYDYR(5)	Array of years for this yard.
J	DO-loop index.
JJ	Subscript used in matching group numbers.
JJJ	Initial parameter of DO-loop.
KK	Flag when set to "0", groups are summed but not entire yard; when set to "1", entire yard is summed but no groups; when set to "2", entire yard and groups are summed.
KKK	Control variable in "computed go to".
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LLL	Terminal parameter of DO-loop.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine TITLE

ID	Identification number assigned to a yard.
JOPT	Option for a specific yard. When set to "1", repairs, only are reported on; when set to "2", alterations, only are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are reported on.

Subroutine YDNO

ICHASN	Variable containing the characters "CHASN".
ID	Identification number assigned to a yard.
IPEARL	Variable containing the characters "PEARL".
IPHILA	Variable containing the characters "PHILA".
IPTSMH	Variable containing the characters "PTSMH".
IPUGET	Variable containing the characters "PUGET".
IYD	Yard name being processed.
LBECB	Variable containing the characters "LBECB".
MARE	Variable containing the characters "MARE".
NORVA	Variable containing the characters "NORVA".

Subroutine YEAR

I	DO-loop index.
IFYR	Fiscal year for a given record.
IYDYR(5)	Array of years for a given yard.

6.1.7 SAMPLE RUN

The card inputs (unit 5) for the sample run of REPSHOP consisted of Group Definition cards and yard option cards. Three groups were defined. Group 1 was a group of all CGN's and was defined as CGN 1 through CGN 9999. Group 2 consisted of a single ship, the CGN 35. Group 3 defined the CV 59 Class of carriers, so the lower bound of the ship type-hull number was CV 59 and the upper bound was CV 62. Two shipyards were scheduled to be reported on. They were Norfolk and Puget Sound. In both cases, summaries were required for repairs, for alterations, and for their total. All three ship groupings were requested for Norfolk but reports for Puget Sound were to be generated for Group 2 only. Three non-consecutive fiscal years were to be reported on.

The Shop File (unit 11) produced by program XPLODE is a binary file. Ten data records from this file are given in a readable format. Each record was printed on five lines. The first line contains identifying information from the Depot Maintenance Assignment File (DMAF). The second and third lines give the total direct repair mandays for each of the 20 shops and the fourth and fifth lines give the total alteration mandays for each of the 20 shops, plus two other values from DMAF. These are the Production Shop Productive (PSP) mandays for that record and the percent of PSP mandays for alterations.

Shop reports (unit 6) show the mandays projected by shops for five fiscal years at Norfolk Shipyard for Group 1, a group of all CGN's. When projections were requested for Group 2, the CGN 35, an error message was written stating there was no work for that ship at Norfolk for any of the required years. There were, however, projected workloads at Puget Sound for the CGN 35. Summary reports were produced for the CV 59 class at Norfolk and all sample outputs show repair mandays, alteration mandays, and total mandays.

Unit 5 - Card Inputs

1	CGN	1	CGN	9999					
1									
2	CGN	35	CGN	35					
2									
3	CV	59	CV	62					
3									
-1									
08/30/77			DMPPS	SAMPLE	RUN				
NORVA			REP	ALT	TOT	78	79	80	81 82
NORVA	1	2	3						
PUGET			REP	ALT	TOT	79	81	82	
PUGET	2								
LAST									

Unit 11 - Shop File

CGM	40	MA	CHASN	0	82	ME	2	50182	78182	AAM	18.95	2286.61	451.84	994.11			
	10.01	767.89	823.50	44.19	952.95	1935.10					10.95	2286.61	451.84	994.11			
	1984.66	435.42	0.00	126.67	884.74	884.92					0.02	26.09	64.37	336.45			
	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00		12000	0
CGM	37	RA	MORVA	0	78	ME	2	62178	82278	AAM	19.65	2288.26	467.73	1838.89			
	10.38	796.38	853.97	45.83	988.21	2086.70					19.65	2288.26	467.73	1838.89			
	1975.14	451.53	0.00	131.35	357.50	917.67					0.12	27.09	66.70	348.98			
	0.00	0.00	0.00	0.00	0.00	383.59					0.00	25.68	6.58	638.46		28400	39
	1147.49	0.00	0.00	5393.05	58.14	87.13					0.00	6.58	227.69	263.86			
CGM	37	RO	MORVA	0	81	ME	1	10281	38582	AAM	1165.68	6565.39	1896.20	7681.79			
	81.11	2417.86	2802.78	142.60	2298.49	6974.28					1165.68	6565.39	1896.20	7681.79			
	12176.72	1950.91	0.00	2037.36	2531.11	6366.59					24.18	117.28	1869.23	23149.84			
	13	1783.48	108.86	29.37	376.61	758.66					1875.87	366.43	48.85	581.00			
	813.99	216.20	0.00	2678.82	231.44	452.45					0.00	14.33	139.86	3373.67		68369	14
CGM	37	RO	MORVA	0	81	ME	2	10281	38582	AAM	2758.83	15539.47	4814.71	17992.51			
	191.98	5722.77	6633.84	337.53	5435.52	16587.25					2758.83	15539.47	4814.71	17992.51			
	28820.80	4617.57	0.00	4822.18	5990.84	15821.59					57.04	277.40	4424.23	54792.81			
	130	4031.94	238.72	69.51	891.39	1776.73					2146.84	867.31	94.79	1375.16			
	1926.62	511.73	0.00	6338.53	547.88	1078.69					2.86	33.92	331.82	7989.07		161821	14
CGM	37	RO	MORVA	0	82	ME	1	10281	38582	AAM	815.86	4998.94	1186.89	5315.66			
	56.72	1690.72	1959.89	99.72	1605.86	4876.86					815.86	4998.94	1186.89	5315.66			
	8514.75	1364.20	0.00	1424.65	1769.92	4437.94					16.95	81.96	1307.08	16187.85			
	569.20	151.18	0.00	28.54	263.35	524.91					752.31	256.23	26.00	486.27			
CGM	38	PA	MORVA	0	79	ME	2	88379	188279	AAM	12.83	1494.87	305.56	673.46			
	6.78	520.21	557.88	29.94	645.57	1310.94					12.83	1494.87	305.56	673.46			
	1290.31	294.97	8.00	85.81	233.55	599.49					5.43	18.22	43.57	227.93			
	0.00	633.11	38.46	1.33	153.86	377.12					1892.24	0.00	19.81	148.99			
	56.59	92.40	0.00	0.00	76.93	326.72					0.00	6.63	2.21	995.53		11955	32
CGM	38	PA	MORVA	0	80	ME	1	88379	188279	AAM	4.82	5.58	1.12	2.48			
	0.02	1.91	2.05	11	2.38	4.82					0.85	5.58	1.12	2.48			
	4.75	1.09	0.00	32	0.86	2.21					0.02	0.07	0.16	0.84			
	0.00	2.33	0.00	0.00	0.00	1.39					6.96	0.08	0.07	0.55			
	21	0.34	0.00	0.00	0.00	1.20					0.00	0.00	0.01	2.19		44	32
CGM	38	RO	MORVA	0	82	ME	2	70182	90283	AAM	1383.88	7794.85	2813.84	9825.34			
	96.30	2870.63	3327.64	169.31	2726.55	8280.31					1383.88	7794.85	2813.84	9825.34			
	14456.99	2316.25	0.00	2418.89	3005.10	7535.08					28.61	139.15	2219.27	27484.98			
	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00		69008	0
CV	59	PA	MORVA	0	80	ME	2	50380	72980	CVA	226.28	4628.55	2591.27	3368.28			
	16.34	2029.70	557.32	130.99	2782.41	4106.27					226.28	4628.55	2591.27	3368.28			
	5301.45	997.77	0.00	1288.88	1100.34	4281.21					20.91	76.64	776.28	3394.38			
	4.69	1168.45	344.83	25.70	1258.97	2024.81					19.14	4678.06	80.43	1870.65			
	8240.93	1239.52	0.00	3543.05	195.87	941.97					2.17	78.62	81.94	3911.91		60000	43
CV	59	PA	MORVA	0	82	ME	1	100181	10182	CVA	396.84	8120.26	4546.08	5909.26			
	28.66	3568.89	977.76	229.88	4881.43	7283.99					396.84	8120.26	4546.08	5909.26			
	9300.79	1750.47	0.00	2119.44	1930.41	7510.90					36.59	134.45	1361.90	5955.84			
	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00		68008	8

Unit 6 - Shop Reports

DATE 08/30/77
DMPPS SAMPLE RUN

[illegible]

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD NO. 999

SUMMARY FOR GROUP NO. 1 - CONSISTING OF

CGN 1 - CGN 9999

FISCAL 1979

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51	TOTAL
REPAIR MANDAYS	10.	796.	854.	46.	989.	2307.	20.	2288.	468.	1331.	12793.
ALTERATION MANDAYS	0.	0.	35.	0.	3.	344.	0.	25.	7.	630.	8221.
TOTAL MANDAYS	10.	796.	889.	46.	992.	2650.	20.	2313.	475.	1961.	21013.

FISCAL 1979

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51	TOTAL
REPAIR MANDAYS	7.	523.	558.	30.	645.	1311.	13.	1495.	305.	573.	8577.
ALTERATION MANDAYS	0.	533.	39.	1.	154.	377.	0.	0.	19.	149.	1495.
TOTAL MANDAYS	7.	1156.	596.	31.	799.	1688.	13.	1495.	324.	722.	10072.

FISCAL 1980

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51	TOTAL
REPAIR MANDAYS	0.	2.	2.	0.	2.	5.	0.	6.	1.	2.	12.
ALTERATION MANDAYS	0.	2.	0.	0.	1.	1.	7.	6.	0.	1.	15.
TOTAL MANDAYS	0.	4.	2.	0.	3.	6.	7.	12.	1.	3.	27.

REPORT 61-24-4 DATE 08/10/77
 OMPS SAMPLE RUN

PAGE 2

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YAPOI NORVA

SUMMATION FOR GROUP NO. 1 - CONSISTING OF

CCN 1 - CGN 9999

FISCAL 1981

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 39	SHOP 41	SHOP 51
REPAIR MANDAYS	271.	814.	9437.	480.	7732.	23482.	324.	26105.	5711.	25554.
ALTERATION MANDAYS	0.	5735.	343.	99.	1268.	2527.	3522.	1234.	135.	1956.
TOTAL MANDAYS	274.	13875.	9776.	579.	9000.	26009.	7547.	27339.	5846.	27550.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	DTM	TOTAL
REPAIR MANDAYS	48998.	6568.	5853.	8522.	21368.	81.	395.	5293.	77943.	275936.
ALTERATION MANDAYS	2741.	728.	9037.	779.	1523.	3.	48.	471.	11359.	43583.
TOTAL MANDAYS	43738.	7296.	15876.	9301.	22892.	84.	443.	5764.	89302.	319421.

FISCAL 1982

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 39	SHOP 41	SHOP 51
REPAIR MANDAYS	153.	4561.	5288.	269.	4332.	13157.	2199.	12386.	3230.	14341.
ALTERATION MANDAYS	0.	1181.	71.	21.	253.	525.	752.	256.	28.	436.
TOTAL MANDAYS	153.	5752.	5359.	290.	4585.	13682.	2951.	12642.	3258.	14777.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	DTM	TOTAL
REPAIR MANDAYS	22972.	3640.	3844.	4775.	11973.	45.	221.	3526.	42672.	154596.
ALTERATION MANDAYS	569.	151.	1873.	162.	318.	1.	10.	98.	2359.	9152.
TOTAL MANDAYS	23541.	3832.	5716.	4937.	12291.	46.	231.	3624.	45032.	163748.

REPORT 51-28-4 DATE: 08/30/77
DAPPS SAMPLE RUN

PAGE 1

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD PUJET

SUMMATION FOR GROUP NO. 2 - CONSISTING OF

CN 35 - CON 35

FISCAL 1979

	SHOP 5	SHOP 11	SHOP 17	SHOP 23	SHOP 25	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51
REPAIR MANDAYS	10.	758.	824.	4.	453.	1335.	19.	2207.	451.	394.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	10.	758.	824.	4.	453.	1335.	19.	2207.	451.	394.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	OTH	TOTAL
REPAIR MANDAYS	1435.	435.	127.	345.	183.	8.	27.	64.	336.	12336.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	1435.	435.	127.	345.	183.	8.	27.	64.	336.	12336.

FISCAL 1981

	SHOP 5	SHOP 11	SHOP 17	SHOP 23	SHOP 25	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51
REPAIR MANDAYS	93.	2879.	3136.	158.	2585.	7324.	1232.	7275.	1883.	8424.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	93.	2879.	3136.	158.	2585.	7324.	1232.	7275.	1883.	8424.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	OTH	TOTAL
REPAIR MANDAYS	11431.	2152.	2258.	2405.	7133.	27.	133.	2371.	25652.	40416.
ALTERATION MANDAYS	1456.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	12887.	2152.	2258.	2405.	7133.	27.	133.	2371.	25652.	40416.

FISCAL 1982

	SHOP 5	SHOP 11	SHOP 17	SHOP 23	SHOP 25	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51
REPAIR MANDAYS	264.	7877.	9131.	455.	7482.	22722.	1798.	2133.	5526.	24757.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	264.	7877.	9131.	455.	7482.	22722.	1798.	2133.	5526.	24757.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	OTH	TOTAL
REPAIR MANDAYS	39672.	6356.	6838.	8248.	20677.	73.	382.	6093.	75422.	256384.
ALTERATION MANDAYS	4456.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	44128.	6356.	6838.	8248.	20677.	73.	382.	6093.	75422.	256384.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD: NORVA

CV 59 - CV 62 SUMMATION FOR GROUP NO. 3 - CONSISTING OF

FISCAL 1978

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51
REPAIR MANDAYS	72.	11445.	3123.	744.	17114.	23759.	529.	27826.	18495.	18557.
ALTERATION MANDAYS	11.	13528.	1231.	270.	6767.	14192.	252.	27669.	679.	15956.
TOTAL MANDAYS	83.	21973.	4354.	1014.	23881.	37951.	781.	55495.	19175.	34513.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	DTM	TOTAL
REPAIR MANDAYS	27395.	5886.	3579.	18668.	26232.	136.	458.	4407.	17988.	218526.
ALTERATION MANDAYS	24335.	4958.	23573.	1302.	5553.	14.	192.	693.	16523.	155460.
TOTAL MANDAYS	51611.	11844.	27251.	11970.	32757.	150.	650.	5100.	34521.	374586.

FISCAL 1979

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51
REPAIR MANDAYS	45.	7117.	1944.	462.	10515.	18721.	395.	17152.	11158.	11578.
ALTERATION MANDAYS	5.	7597.	1236.	202.	4715.	18144.	1888.	21278.	349.	14276.
TOTAL MANDAYS	52.	14803.	3179.	665.	14552.	24865.	4283.	38430.	11507.	25853.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	DTM	TOTAL
REPAIR MANDAYS	17289.	3744.	2564.	6239.	16127.	81.	282.	2738.	11287.	135352.
ALTERATION MANDAYS	14651.	2359.	18844.	1032.	4753.	6.	281.	554.	18342.	124887.
TOTAL MANDAYS	31940.	7113.	21429.	7272.	21832.	89.	563.	3292.	29630.	260249.

FISCAL 1980

	SHOP 6	SHOP 11	SHOP 17	SHOP 23	SHOP 26	SHOP 31	SHOP 36	SHOP 38	SHOP 41	SHOP 51
REPAIR MANDAYS	36.	4761.	1305.	328.	6633.	9734.	442.	11063.	6541.	7849.
ALTERATION MANDAYS	7.	2375.	862.	85.	2744.	5339.	2340.	11633.	215.	6338.
TOTAL MANDAYS	42.	7136.	2167.	393.	9443.	15043.	2782.	22696.	6756.	14187.

	SHOP 56	SHOP 64	SHOP 67	SHOP 71	SHOP 72	SHOP 81	SHOP 94	SHOP 99	DTM	TOTAL
REPAIR MANDAYS	12128.	2355.	2451.	3112.	10232.	51.	183.	1825.	7825.	88377.
ALTERATION MANDAYS	15348.	2655.	9273.	572.	2949.	5.	179.	256.	9525.	73209.
TOTAL MANDAYS	27475.	4951.	11734.	3684.	12841.	56.	361.	2081.	17350.	162185.

REPORT 61-34-4 DATE 08/30/77
EMPOS SAMPLE RUN

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TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

VSPO: NORVA

CV 59 - CV 52 SUMMATION FOR GROUP NO. 3 - CONSISTING OF

FISCAL 1981

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTM	TOTAL
REPAIR MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FISCAL 1982

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	29.	4561.	978.	230.	4881.	7204.	397.	8120.	4546.	5909.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	29.	4561.	978.	230.	4881.	7204.	397.	8120.	4546.	5909.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTM	TOTAL
REPAIR MANDAYS	9301.	1750.	2119.	1930.	7511.	37.	134.	1362.	5955.	65955.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	9301.	1750.	2119.	1930.	7511.	37.	134.	1362.	5955.	65955.

6.2 PROGRAM PREWBS

6.2.1 DESCRIPTION

The program PREWBS (Prepare SWBS File) facilitates the generation of SWBS reports by preprocessing the SWBS File for use by the program REPWBS. The SWBS File is a binary file prepared by the program XPILODE (see Section 5.1). It breaks down the work for each scheduled availability (on DMAF) by single-digit SWBS category.

OSD guidelines for reporting by SWBS categories established the primary reporting level as groups of ships. These groups may be quite broad--such as surface combatants, submarines, etc.--or they may be more restrictive--to ship types, ship classes, or even individual hulls. In order to permit such wide variations in ship groupings, DMPPS uses the following scheme to define the groups. A DMPPS ship group consists of sets of ship-type/hull-number ranges (such as CV 19-CVN 70). Up to six sets of ranges are permitted in defining each ship group. Note that a ship may fall within more than one group or, conversely, may not belong to any group. Both these cases are permissible within the SWBS reporting structure.

Cards specifying the desired ship groups form one of the key inputs to PREWBS. The first phase of the PREWBS processing includes reading in these cards, storing the group definitions in an array, and checking them for error. The error check involves examining each ship-type/hull-number range for alphabetical order. A list of all ship groups is produced and any erroneous ranges are indicated by an asterisk. In addition, all ship groups (including those with errors) are written into the PREWBS output file, the SWBS (by Groups) File.

The second (and final) phase of the PREWBS processing involves reading in each record of the SWBS File, examining the ship type and hull number of the record, and determining which, if any, group or groups the ship falls within. All information from the SWBS File record is

uplicated on the SWBS (by Groups) File for each group within which the ship falls. In addition, each new record contains a group number. Thus, if a ship falls within no group, the record is not written at all on the SWBS (by Groups) File. On the other hand, if a ship falls within three groups, three copies of the record are made (each with a different group number).

To expedite its processing, PREWBS compares the ship type and hull number of the current SWBS File record with that of the preceding record. If they are the same, the list of groups to which the ship belongs has already been prepared and need not be regenerated.

A sort must follow the PREWBS program. It is an integral part of the run set-up for PREWBS (see Section 6.2.2) and sorts the output SWBS (by Groups) File first by group, then by fiscal year.

PREWBS consists of a main program and two subroutines. The hierarchical diagram of PREWBS is given in Figure 6.2-1.

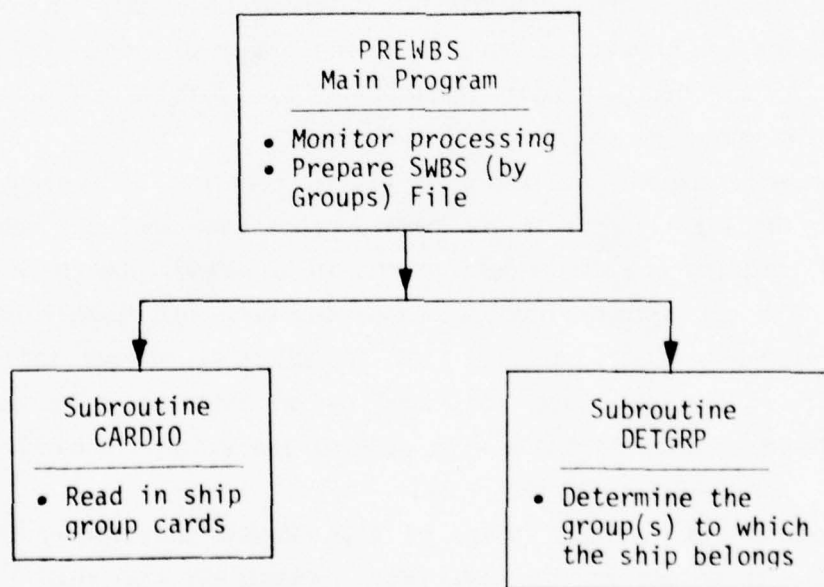


Figure 6.2-1 - PREWBS Hierarchical Diagram

Main Program

The main program of PREWBS calls subroutine CARDIO to read in and process the ship group cards. It then reads in (one at a time) the records of the SWBS File, calls subroutine DETGRP to prepare a list of the groups within which the ship falls, and prepares the SWBS (by Groups) File.

Subroutine CARDIO

Subroutine CARDIO reads in all ship group cards, examines them for error, prints them out, and writes them on the SWBS (by Groups) File.

Subroutine DETGRP

Subroutine DETGRP prepares a list of the groups within which a particular ship falls.

6.2.2 RUN SET-UP

The following set-up is used to run the PPFWBS program on the IBM 360/370 computer:

```
//NVS PREWB JOB (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOB LI9 DD DSN=NVS01.DEPOT.LIB,DISP=SHR

// EXEC PGM=PREWBS                                (EXECUTE PROGRAM PREWBS)
//GO.FT05F001 DD *

PREWBS card inputs (unit 5)

//GO.FT06F001 DD SYSOUT=A                          (LIST OF GROUP DEFINITIONS)
//GO.FT10F001 DD DSN=NVS01.SWBS.EXPLODE.DATA,DISP=SHR (INPUT FILE)
//GO.FT11F001 DD DSN=||SWBS,DISP=(,PASS),UNIT=SYSDA,SPACE=(1444,30),
// DCB=(LRECL=144,RECFM=VBS,BLKSIZE=1444)          (OUTPUT FILE)

// EXEC SDA                                         (SORT SWBS.GROUPS FILE)
//SORTIN DD DSN=||SWBS,DISP=(OLD,DELETE)
//SORTOUT DD DSN=NVS01.SWBS.GROUPS.DATA,DISP=SHR
//SYSIN DD *      SORT FIRST BY GROUP NUMBER, THEN BY FISCAL YEAR
SORT FIELDS=(25,0,4,0,A,29,0,4,0,A),FORMAT=BI
```

6.2.3 INPUTS

Card inputs are made using unit 5. The format for these cards is given in Section 6.2.3.1.

Unit 5 - Card inputs which define the ship groups.

The following additional unit is used to input information from a disk file created by a previously run program (XPL0DE):

Unit 10 - SWBS File.

The format for this file is given in Section 6.2.3.3.

6.2.3.1 Unit 5 - Card Input

Group Definition Cards. Two cards are required to define each ship group. As many as 100 such pairs of cards may be input.

Type A Card. The format for the first group definition card is:

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IGRPNO	Group number	1-3	I3
SHIP(1,1)	Ship type of the lower bound of the first ship range	9-12	A4
IHULL(1,1)	Hull number of the lower bound of the first ship range	13-16	I4
SHIP(1,2)	Ship type of the upper bound of the first ship range	20-23	A4
IHULL(1,2)	Hull number of the upper bound of the first ship range	24-27	I4
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(3,2)	Ship type of the upper bound of the third ship range	68-71	A4
IHULL(3,2)	Hull number of the upper bound of the third ship range	72-75	I4

Type B Card. The format for the second group definition card is:

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IGRPNO	Group number	1-3	I3
SHIP(4,1)	Ship type of the lower bound of the fourth ship range	9-12	A4

Type B Card (Continued)

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IHULL(4,1)	Hull number of the lower bound of the fourth ship range	13-16	I4
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(6,2)	Ship type of the upper bound of the sixth ship range	68-71	A4
IHULL(6,2)	Hull number of the upper bound of the sixth ship range	72-75	I4

Termination Card. The final input card must be of the following format:

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
	Must contain a negative number	1-3	I3

6.2.3.2 Unit 10 - SWBS File

The SWBS File is a binary file. Each record on the file corresponds to a record on the Depot Maintenance Assignment File. The organization of each record is as follows:

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format*</u>
SHULL	Ship-type/hull-number	1	(A8)
TW	Type work	2	(A3)
YARD	Shipyard	3	(A5)
INFO(1)	Group number (=0)	4	(I3)
INFO(2)	Fiscal year (this record)	5	(I2)
INFO(3)	Yard ownership indicator	6	(A1)
INFO(4)	Coast	7	(A1)
INFO(5)	Period (this record)	8	(I1)
INFO(6)	Continuation indicator	9	(A1)
INFO(7)	Availability start date (mo/day/yr)	10	(I6)
INFO(8)	Availability end date (mo/day/yr)	11	(I6)
INFO(9)	Specialization category	12	(A3)
RINFO(1-9)	Total direct repair mandays for each SWBS category	13-20	(9F10.2)
RINFO(10-18)	Total direct alterations mandays for each SWBS category	21-29	(9F10.2)
RINFO(19)	Fraction of total direct repair mandays for "other direct"	30	(F10.6)
RINFO(20)	Fraction of total direct alterations mandays for "other direct"	31	(F10.6)

*The format is given for reference only. Since the file is a binary file, formats are not used in reading the file.

6.2.4 OUTPUTS

The following unit is used by PREWBS to generate hard-copy output:

Unit 6 - List of ship group definitions.

Section 6.2.7 shows a sample of this output.

PREWBS uses the following additional unit to store information on disk for use by a subsequent program (REPWBS):

Unit 11 - SWBS (by Groups) File (Unsorted).

The format of this file is given in Section 6.2.4.1.

6.2.4.1 Unit 11 - SWBS (by Groups) File (Unsorted)

The SWBS (by Groups) File is a binary file. The formats given for the variables are thus for reference only.

Group Definition Records. The group definition records precede all other records in the unsorted version of the SWBS (by Groups) File. There may be up to 100 such records on the file. The "format" for each record is:

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
BLANK	Contains Hollerith blanks	1	(A5)
IDUM	Contains a zero	2	(I1)
BLANK	Contains Hollerith blanks	3	(A5)
IGRPNO	Group number	4	(I3)
IDUM	Contains a zero	5	(I1)
SHIP(1,1)	Ship type of lower bound of first ship range (in the group)	6	(A4)
IHULL(1,1)	Hull number of lower bound of first ship range	7	(I4)
SHIP(1,2)	Ship type of upper bound of first ship range	8	(A4)
IHULL(1,2)	Hull number of upper bound of first ship range	9	(I4)
SHIP(2,1)	Ship type of lower bound of second ship range	10	(A4)
IHULL(2,1)	Hull number of lower bound of second ship range	11	(I4)
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(6,2)	Ship type of upper bound of sixth ship range	28	(A4)
IHULL(6,2)	Hull Number of upper bound of sixth ship range	29	(I4)
FILLER(1-3)	Dummy array	30-32	(3A4)

SWBS Records. Each SWBS record corresponds to a record on the SWBS File (and hence to a record on DMAF). However, there may be more than one SWBS record for any given record on the SWBS File, if the ship (to which the record applies) falls within more than one group. Conversely, if the ship falls within no group, the SWBS File records for the ship do not appear on the SWBS (by Groups) File. The "format" for each SWBS record is as follows:

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
SHULL	Ship type-hull number	1	(A8)
TW	Type work	2	(A3)
YARD	Shipyard	3	(A5)
INFO(1)	Group number	4	(I3)
INFO(2)	Fiscal year (this record)	5	(I2)
INFO(3)	Yard ownership indicator	6	(A1)
INFO(4)	Coast	7	(A1)
INFO(5)	Period (this record)	8	(I1)
INFO(6)	Continuation indicator	9	(A1)
INFO(7)	Availability start date (mo/day/yr)	10	(I6)
INFO(8)	Availability end date (mo/day/yr)	11	(I6)
INFO(9)	Specialization category	12	(A3)
RINFO(1-9)	Total direct repair man- days for each SWBS category	13-20	(9F10.2)
RINFO(10-18)	Total direct alteration mandays for each SWBS category	21-29	(9F10.2)
RINFO(19)	Fraction of total direct repair mandays for "other direct"	30	(F10.6)
RINFO(20)	Fraction of total direct alteration mandays for "other direct"	31	(F10.6)

6.2.5 PROGRAM LISTING

```

C*****PROGRAM PREWBS(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE10,
C****. TAPE11)
C
C
C UNIT 5 - INPUT - GROUP DEFINITION CARDS.
C
C UNIT 6 - OUTPUT - FORMATTED PRINTOUT OF GROUP DEFINITIONS.
C
C UNIT 10- INPUT - BINARY FILE CONTAINING MAN-DAY REQUIREMENTS BY WBS
C FOR EACH SHIP AVAILABILITY.
C
C UNIT 11- OUTPUT - EXPANDED BINARY FILE CONTAINING GROUP DEFINITIONS
C AND MAN-DAY REQUIREMENTS BY WBS FOR EACH SHIP
C AVAILABILITY AND EACH GROUP.
C
C PROGRAMMED BY LINDA L. LAMATRICE, DTNSRDC (CODE 185), JAN. 1975.
C
C
C DIMENSION INFO(9),RINFO(20)
C
C*****INTEGER GRPDEF,SHULL,SHULLP
C REAL*8 GRPDEF,SHULL,SHULLP,YARD
C
C COMMON /GROUPS/GRPDEF(100,5,2),IGRPNO(100),NGRPS,IGRPS(10),NG
C -----
C
C CALL CARDIO TO READ IN GROUP DEFINITION CARDS. -----
C CALL CARDIO
C WRITE (6,90)
C 90 FORMAT (1H1)
C
C READ IN NEXT SHIP RECORD. -----
C SHULLP=0
C*100 READ (10) SHULL,TW,YARD,INFO,RINFO
C 100 READ (10,END=140) SHULL,TW,YARD,INFO,RINFO
C*****IF (EOF(10).NE.0.0) GO TO 140
C
C IF THIS SHIP IS NOT THE SAME AS THE PREVIOUS SHIP, DETERMINE WHICH
C GROUPS IT BELONGS TO. -----
C IF (SHULL.EQ.SHULLP) GO TO 120
C SHULLP=SHULL
C*****CALL DETGRP(SHULL), RETURNS(150)
C CALL DETGRP(SHULL,$150)
C WRITE (6,115) SHULL,TW,NG,(IGRPS(I),I=1,NG)
C 115 FORMAT (10X,A8,5H (TW=,A3,14H) - BELONGS TO,I2,8H GROUPS:,10I4)
C
C WRITE SHIP RECORD ON UNIT 11 NG TIMES. -----
C 120 DO 130 I=1,NG
C INFO(1)=IGRPS(I)
C 130 WRITE (11) SHULL,TW,YARD,INFO,RINFO
C GO TO 100
C
C 140 STOP
C 150 WRITE (6,160) SHULL,TW
C 160 FORMAT (10X,A8, 5H (TW=,A3,24H) - BELONGS TO NO GROUP.)
C SHULLP=0
C GO TO 100
C END

```

<pre> SUBROUTINE CARDIO C C C SUBROUTINE CARDIO (CARD INPUT/OUTPUT) READS IN THE INPUT CARDS C WHICH DEFINE THE GROUPS. IN ADDITION, IT WRITES THE GROUP DEFINITIONS C ON UNIT 11 (AS BINARY RECORDS) AND RPINTS THEM ON UNIT 6. C DIMENSION SHIP(6,2),IHULL(6,2),NOTE(6),FILLER(3) C C*****INTEGER GRPDEF,BLANK REAL*4 GRPDEF,BLANK C COMMON /GROUPS/GRPDEF(100,6,2),IGRPNO(100),NGRPS,IGRPS(10),NG C DATA IDUM/0/, IRLANK/1H /, IAST/1H*/, BLANK/1H /, . FILLER/ 3*0.0/ C C ----- C C C READ NEXT GROUP DEFINITION SET. ----- N=1 IERROR=0 LINE=70 100 READ (5,110) IGRPNO(N),((GRPDEF(N,I,J),J=1,2), I=1,3), . ((SHIP(I,J),IHULL(I,J),J=1,2),I=1,3), . ((GRPDEF(N,I,J),J=1,2),I=4,6), ((SHIP(I,J),IHULL(I,J),J=1,2), . I=4,6) 110 FORMAT (I3,3(2X,2(3X,A8)),T4,3(2X,2(3X,2A4)) / . 3X,3(2X,2(3X,A8)),T4,3(2X,2(3X,2A4))) IF (IGRPNO(N).GT.0) GO TO 120 NGRPS=N-1 IF (IERROR.EQ.0) RETURN DO 112 I=LINE,55,2 112 WRITE (6,115) 115 FORMAT(1H0) WRITE (6,117) 117 FORMAT (10X,46H*ERROR - UPPER BOUND OF THIS SHIP SET PRECEDES, . 51H (ALPHABETICALLY) THE LOWER BOUND. RUN IS ABORTED.) RETURN STOP C C PRINT PAGE HEADING (IF NEW PAGE). ----- 120 IF (LINE.LT.60) GO TO 131 LINE=10 WRITE (6,130) 130 FORMAT (1H1/34X,22HSHIP GROUP DEFINITIONS/34X,22(1H-)/ . 1H0/1H0,10X,5HGROUP/10X,2AHNUMBER S H I P S E T S/ . 10X,26H-----) C C CHECK SHIP SET LIMITS FOR CORRECT ORDER. ----- 131 DO 132 I=1,6 IF (GRPDEF(N,I,1).EQ. BLANK) GO TO 135 NOTE(I)=I*BLANK C*****DO 150 J=1,2 C*150 GRPDEF(N,I,J)=ICBZ(GRPDEF(N,I,J)) C*****IF (GRPDEF(N,I,2).GE.GRPDEF(N,I,1)) GO TO 132 IF (GRPDEF(N,I,2).LE.GRPDEF(N,I,1)) GO TO 132 NOTE(I)=IAST </pre>	<pre> CARD 10 CARD 20 CARD 30 CARD 40 CARD 50 CARD 60 CARD 70 CARD 90 CARD 100 **** 110 **** 120 CARD 130 CARD 140 CARD 150 CARD 160 CARD 180 CARD 190 CARD 200 CARD 210 CARD 220 CARD 230 CARD 240 CARD 250 CARD 260 CARD 270 CARD 280 CARD 290 CARD 300 CARD 310 CARD 320 CARD 330 CARD 340 CARD 350 CARD 360 CARD 370 CARD 380 CARD 390 CARD 400 CARD 410 TEMP 420 CARD 430 CARD 440 CARD 450 CARD 460 CARD 470 CARD 480 CARD 490 CARD 500 CARD 510 CARD 520 CARD 530 CARD 540 CARD 550 CARD 560 **** 570 **** 580 **** 590 **** 595 CARD 600 </pre>
---	---

IFROR=1	CARD 610
132 CONTINUE	CARD 620
NSETS=6	CARD 630
GO TO 137	CARD 640
135 NSETS=I-1	CARD 650
C	CARD 660
C PRINT GROUP DEFINITION (THIS GROUP) ON UNIT 6. -----	CARD 670
137 WRITE (6,140) IGRPNO(N), (IBLANK, (SHIP(I,J), IHULL(I,J), J=1,2),	CARD 680
NOTE(I), I=1, NSETS)	CARD 690
140 FORMAT (1H0, 11X, I3, 3X, A1, 3(3X, A4, 1X, A4, 3H - , A4, 1X, A4, 2A1)/	CARD 700
19X, 3(3X, A4, 1X, A4, 3H - , A4, 1X, A4, 2A1))	CARD 710
LINE=LINE+(NSETS-1)/3 + 2	CARD 720
C	CARD 730
C WRITE GROUP DEFINITION ON UNIT 11. -----	CARD 740
WRITE (11) BLANK, IDUM, BLANK, IGRPNO(N), IDUM,	CARD 750
((SHIP(I,J), IHULL(I,J), J=1,2), I=1,6), FILLER	CARD 760
C	CARD 770
N=N+1	CARD 780
GO TO 100	CARD 790
END	CARD 800

C*****SUBROUTINE DETGRP(SHULL), RETURNS(IRET1)	**** 10
SUBROUTINE DETGRP(SHULL,*)	**** 20
C	DETG 30
C	DETG 40
C SUBROUTINE DETGRP (DETERMINE GROUPS) PREPARES A LIST OF GROUPS	DETG 50
C THE CURRENT SHIP (SHULL) BELONGS TO. IF THE SHIP BELONGS TO NO	DETG 60
C GROUP, A NON-STANDARD RETURN IS MADE.	DETG 70
C	DETG 80
C	DETG 90
C*****INTEGER SHULL,GRPDEF	**** 100
REAL*4 SHULL,GRPDEF	**** 110
C	DETG 120
COMMON /GROUPS/GRPDEF(100,6,2),IGRPNO(100),NGRPS,IGRPS(10),NG	DETG 130
C	DETG 140
C-----	DETG 150
C	DETG 160
NG=0	DETG 170
DO 120 I=1,NGRPS	DETG 180
DO 100 J=1,6	DETG 190
IF (SHULL.LE.GRPDEF(I,J,1) .AND. SHULL.GE.GRPDEF(I,J,2)) GO TO 110	**** 200
C*****IF (SHULL.GE.GRPDEF(I,J,1) .AND. SHULL.LE.GRPDEF(I,J,2)) GO TO 110	**** 210
100 CONTINUE	DETG 220
GO TO 120	DETG 230
C	DETG 240
C PLACE THIS GROUP ON THE LIST. -----	DETG 250
110 NG=NG+1	DETG 260
IF (NG.GT.10) GO TO 130	DETG 270
IGRPS(NG)=IGRPNO(I)	DETG 280
120 CONTINUE	DETG 290
C*****IF (NG.EQ.0) RETURN IRET1	**** 300
IF (NG.EQ.0) RETURN 1	**** 310
RETURN	DETG 320
C	DETG 330
C SHIP BELONGS TO TOO MANY GROUPS. -----	DETG 340
130 WRITE (6,140) SHULL	DETG 350
140 FORMAT (10X,A8,	DETG 360
22H - BELONGS TO TOO MANY,	DETG 370
49H (MORE THAN 10) GROUPS. LIST IS TRUNCATED TO 10.)	DETG 380
RETURN	DETG 390
END	

FUNCTION ICBZ(IWORD)	ICBZ 10
C	ICBZ 20
C ICBZ (CHANGE BLANKS TO ZEROS) EXAMINES THE CHARACTERS OF IWORD	ICBZ 30
C AND CHANGES ANY BLANKS IT FINDS (OCTAL 55) TO ZEROS (OCTAL 00).	ICBZ 40
C	ICBZ 50
C*****	ICBZ 60
C*****NOTE: ICBZ IS A MACHINE-DEPENDENT FUNCTION. USE IT	ICBZ 70
C*****ONLY WHEN RUNNING ON A CDC 6000 SERIES COMPUTER.	ICBZ 80
C*****	ICBZ 90
C	ICBZ 100
C****DATA MASK/77B/, IBLANK/55B/	**** 110
C	ICBZ 120
C -----	ICBZ 130
C	ICBZ 140
C****JMASK=MASK	**** 150
C****JBLANK=IBLANK	**** 160
C JCBZ=IWORD	ICBZ 170
C****DO 110 I=1,10	**** 180
C****ITEMP=IWORD.AND.JMASK	**** 190
C****IF (ITEMP.NE.JBLANK) GO TO 100	**** 200
C****JCBZ=JCBZ.AND..NOT.JMASK	**** 210
C*100 JMASK =SHIFT(JMASK,6)	**** 220
C****JBLANK=SHIFT(JBLANK,6)	**** 230
C*110 CONTINUE	**** 240
ICBZ=JCBZ	ICBZ 250
RETURN	ICBZ 260
END	ICBZ 270

6.2.6 GLOSSARY

COMMON VARIABLES

Common Block /GROUPS/

GRPDEF(100,6,2)	Lower (third subscript=1) and upper (third subscript=2) bounds of the six ship-type/hull-number ranges for up to 100 ship groups.
IGRPNO(100)	Group number of the ship groups.
NGRPS	Number of ship groups.
IGRPS(10)	List of groups (by group number) to which the current ship belongs.
NG	Number of groups to which the current ship belongs.

LOCAL VARIABLES

Main Program

I	DO-loop index.
INFO(9)	Array used to transfer some of the information from the SWBS File to the SWBS (by Groups) File.
RINFO(20)	Array used to transfer some of the information from the SWBS File to the SWBS (by Groups) File.
SHULL	Ship type and hull number of the current SWBS File record.
SHULLP	Ship type and hull number of the previous SWBS File record.
TW	Type of work of the current SWBS File record.
YARD	Shipyard of the current SWBS File record.

Subroutine CARDIO

BLANK	Contains Hollerith blanks.
FILLER(3)	Array whose elements are all zero.
I	DO-loop index.
IAST	Contains a Hollerith asterisk.
IBLANK	Contains Hollerith blanks.
IDUM	Contains zero.
IERROR	Error indicator. Indicates whether or not any errors were encountered in any of the group definitions.
IHULL(6,2)	Array containing the hull numbers of the six ship ranges of the current group. The second subscript indicates lower versus upper bounds.
J	DO-loop index.
LINE	Line counter for unit 6 hard-copy output.
N	Number of groups processed.
NOTE(6)	Array used in printing out the group definitions to flag erroneous ship ranges with an asterisk.
NSPTS	Number of sets of ship ranges for the current group.
SHIP(6,2)	Array containing the ship types of the six ship ranges of the current group. The second subscript indicates lower versus upper bounds.

Subroutine DETGRP

I	DO-loop index.
J	DO-loop index.
SHULL	Ship type and hull number of the current ship.

6.2.7 SAMPLE RUN

The sample run of PREWBS used the SWBS File created by the program XPLODE (Volume 5) as its basic input file. Since this is a binary file, it cannot be merely printed out. However, a formatted version was prepared by XPLODE for the sample run and is reproduced in this section to enable the user to trace the processing done by PREWBS. Similarly, the PREWBS output file, the SWBS (by Groups) File (unit 11), is a binary file and, as such, cannot be meaningfully printed out. In this case, the file was sorted and a formatted version of the sorted SWBS (by Groups) File is displayed.

Card inputs to PREWBS defined the following three groups:

1. All CGN's
2. CGN 35
3. CV 59 Class ships

Unit 5 - Card Inputs

1	CGN	1	CGN	9999
1				
2	CGN	35	CGN	35
2				
3	CV	59	CV	62
3				
-1				

Unit 10 (Input) - Partial Printout of SWBS File (Formatted for Display)

CGN	40	PA	CHASN	0	A2	NE	?	213.42	50182	70182	AM	0.00	0.00	0.00	38.24	0.000000
	1764.11		4228.15		479.89			0.00	4233.87	1318.77		0.00	0.00	0.00	0.00	0.00
CGN	37	PA	NORVA	0	A2	NE	?	221.32	62178	22278	AM	0.00	0.00	0.00	39.66	0.032180
	1829.38		4446.81		497.64			0.00	4390.52	1367.56		0.00	0.00	0.00	0.00	0.00
CGN	37	PC	NORVA	0	A1	NE	1	10281	10281	30582	AM	0.00	0.00	0.00	16373.05	0.260609
	1089.90		26796.73		4720.16			3876.10	9104.33	5187.26		647.38	14152.26	0.00	0.00	0.00
CGN	37	PO	NORVA	0	A1	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	38752.98	0.260609
	2579.65		63424.55		1172.03			9174.25	21548.83	12277.60		1532.28	33496.70	0.00	0.00	0.00
CGN	37	PO	NORVA	0	A2	NE	1	10281	10281	30582	AM	0.00	0.00	0.00	11449.03	0.134700
	762.13		18737.99		3103.64			2710.42	6366.33	3627.26		452.69	9896.18	0.00	0.00	0.00
CGN	38	PA	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	1641.42		0.00		116.60			5060.87	706.85	116.60		1386.87	0.00	0.00	0.00	0.00
CGN	38	PA	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	1195.10		2905.01		325.10			144.58	2868.23	893.40		0.00	0.00	0.00	0.00	0.00
CGN	38	PA	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	4.40		10.59		1.20			53	10.56	3.29		0.00	0.00	0.00	0.00	0.00
CGN	38	PA	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	1294.00		31814.81		5604.08			4401.96	10805.25	6158.65		768.61	16802.50	0.00	0.00	0.00
CV	59	PA	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	1007.53		7879.78		1924.83			3646.65	14470.07	2928.60		1838.36	0.00	0.00	0.00	0.00
CV	59	PA	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	1767.60		1324.18		3376.90			6797.64	25786.10	5137.90		3225.20	0.00	0.00	0.00	0.00
CV	60	PC	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	826.54		3081.64		3917.90			5505.33	37479.03	12170.27		3411.28	11.26	0.00	0.00	0.00
CV	60	PC	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	2039.97		7137.29		905.50			1272.38	4662.07	2812.76		788.41	2.60	0.00	0.00	0.00
CV	62	PC	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	455.24		940.46		7119.56			7119.56	4090.50	208.71		12232.64	0.00	0.00	0.00	0.00
CV	62	PC	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	7080.07		24771.21		3142.68			4416.01	30063.20	9762.19		2736.30	9.03	0.00	0.00	0.00
CV	62	PC	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	10060.25		35198.04		4465.52			6274.82	42717.57	13871.34		3888.08	12.83	0.00	0.00	0.00
CV	62	PC	NORVA	0	A2	NE	2	10281	10281	30582	AM	0.00	0.00	0.00	25.91	0.00
	316.83		1108.51		140.64			197.62	1345.33	436.86		122.45	4.0	0.00	0.00	0.00
	0.00		29.42		5.35			655.04	812.72	39.92		1340.41	0.00	0.00	0.00	0.00

Unit 6 - PRFWBS Printed Output

SHIP GROUP DEFINITIONS

<u>GROUP NUMBER</u>	<u>S H I P</u>	<u>S E T S</u>	
1	CGN	1 - CGN	9999
2	CGN	35 - CGN	35
3	CV	59 - CV	62

Unit 12 (Output of Sort) - Partial Printout of Sorted SWES (by Groups) File (formatted for display)

GROUP 1 - CGM 1-CGM 9999														
CGM	37	RA	MORVA	1	78	NE	2	62178	82278	AAM	0.00	0.00	39.66	.027273 .332100
			4446.81	497.64	221.32			4390.52	1367.56		0.00	0.00	0.00	
			0.00	0.00	8219.66			0.00	0.00					
CGM	39	RA	PUGET	1	79	NW	2	71579	91579	AAM	0.00	0.00	0.00	.027273 .107829
			0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00	
			0.00	0.00	8646.64			0.00	0.00		4803.69	0.00	0.00	
CGM	36	RA	PUGET	1	79	NW	2	11579	41679	AAM	0.00	0.00	7.94	.027273 1.000000
			366.24	890.25	99.63			878.98	273.78		0.00	0.00	0.00	
			0.00	0.00	0.00			983.40	0.00		0.00	0.00	0.00	
CGM	36	RA	PUGET	1	79	NW	1	11579	41679	AAM	0.00	0.00	106.39	.027273 1.000000
			4907.61	11929.27	1335.01			11778.27	3668.73		0.00	0.00	0.00	
			0.00	0.00	0.00			13177.50	0.00		0.00	0.00	0.00	
CGM	35	RA	PUGET	1	79	NW	1	11579	31579	AAM	0.00	0.00	38.24	.027273 0.000000
			1764.11	4288.15	479.89			4233.87	1318.77		0.00	0.00	0.00	
			0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00	
CGM	25	RA	PUGET	1	79	NW	1	11579	31579	AAM	0.00	0.00	76.49	.027273 .134790
			3528.22	8576.30	959.78			8467.74	2637.53		0.00	0.00	0.00	
			0.00	0.00	0.00			0.00	0.00		6934.91	0.00	0.00	
CGM	9	C	PUGET	1	79	NW	2	40179	40182	AAM	3596.14	9254.78	23533.57	.220272 0.000000
			6578.82	24263.38	2929.80			27722.02	2003.51		0.00	0.00	0.00	
			0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00	
CGM	38	RA	MORVA	1	79	NE	2	80379	100279	AAM	0.00	0.00	25.91	.027273 .134700
			1135.10	2905.01	325.10			2868.23	693.40		0.00	0.00	0.00	
			0.00	0.00	0.00			0.00	0.00		4421.13	0.00	0.00	
CGM	38	RA	MORVA	1	80	NE	1	80379	100279	AAM	0.00	0.00	0.00	.027273 .134700
			4.40	10.69	1.20			10.56	3.29		0.00	0.00	0.00	
			0.00	0.00	0.00			0.00	0.00		16.27	0.00	0.00	
CGM	9	C	PUGET	1	80	NW	1	40179	40182	AAM	7129.75	18348.63	46657.95	.220272 0.000000
			1303.26	48104.87	5808.65			54962.01	3988.27		0.00	0.00	0.00	
			0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00	
CGM	9	C	PUGET	1	80	NW	2	40179	40182	AAM	7157.84	18420.90	46841.72	.220272 0.000000
			13094.63	48294.34	5831.53			55178.43	3999.37		0.00	0.00	0.00	
			0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00	

6.3 PROGRAM REPWBS

6.3.1 DESCRIPTION

The REPWBS program produces summary reports of total direct labor mandays, direct labor dollars, and material dollars for various Ship Work Breakdown Structure (SWBS) categories projected for five fiscal years. These reports are generated for various ship groupings. The following nine SWBS categories are referred to in these reports:

1. Hull Structure
2. Propulsion Plant
3. Electrical Plant
4. Command and Surveillance (Shipboard Installations)
5. Auxiliary Systems
6. Outfit and Furnishings
7. Armament (Shipboard Installations)
8. Integration/Engineering (Shipboard Response)
9. Ship Assembly and Support Services

REPWBS uses as input a file, SWBS (by Groups), created by the program PREWBS. This program is a preprocessor that reads the SWBS File produced by the program XPLODE (Volume 5 - Synthesizer Subsystem) and a Group Definition Card Deck which defines various ship groupings. For each grouping there may be as many as six sets of lower and upper ship-type/hull-number range combinations. A group may consist of a single ship, a ship class, functional ship groupings, or any combination of these. In the sample run, work projected for all CGN's was desired. Therefore, group 1 was defined as CGN 1 through CGN 9999. Thus any hull number between 1 and 9999 was included. Group 2 consisted of one ship and was defined as CGN 35 through CGN 35. For each ship on the SWBS File, the program determines to which group, or groups, the ship belongs. The program PREWBS then creates and sorts a new file which has as a header

record the ship group definition, and which contains all records pertaining to those ships. These records are sorted by fiscal year within a group. The format for this file, SWBS (by Groups), is shown in Section 6.3.3.2.

REPWBS input data consist of a header card containing run identification information, the years to be reported on, and a material factor. In addition, a set of cards specifying manday rates must be input for each yard and year. Group Option Cards specify the reporting options and the shipyards for each of the groups to be reported on.

A "group total" report is always printed. Twelve other reports may optionally be generated for each ship group. Table 6.3-1 gives the 12 options. In addition, there may be 13 "yard" reports. That is, the work in as many as 13 shipyards may be reported on for each ship group. These reports show the direct labor mandays, direct labor dollars, and material dollars for all ships in a given shipyard for that ship grouping and the requested fiscal year.

Since data for one ship group are always printed before the next group is processed, any combination of reports may be selected. Therefore the sets of reports requested for one ship group may be entirely different from those selected for another. A ship group identification page, which lists the lower and upper limits of the ship type and hull number of all ships in the group, precedes all reports for that group.

As each record of the SWBS File is read, subroutine DOLLAR is called to determine the manday rate for the yard and year. Data are stored in an array according to the option and year, or in an array for yard and year. There are also arrays for "other" shipwork (UNOW). Such work is tabulated as a separate column since no breakdown of UNOW work by SWBS is currently available to the DMPPS. The subroutine REPORT calculates the material costs and extracts the data for reports by options and year for each requested ship group.

Figure 6.3-1 is a hierarchical diagram of REPWBS.

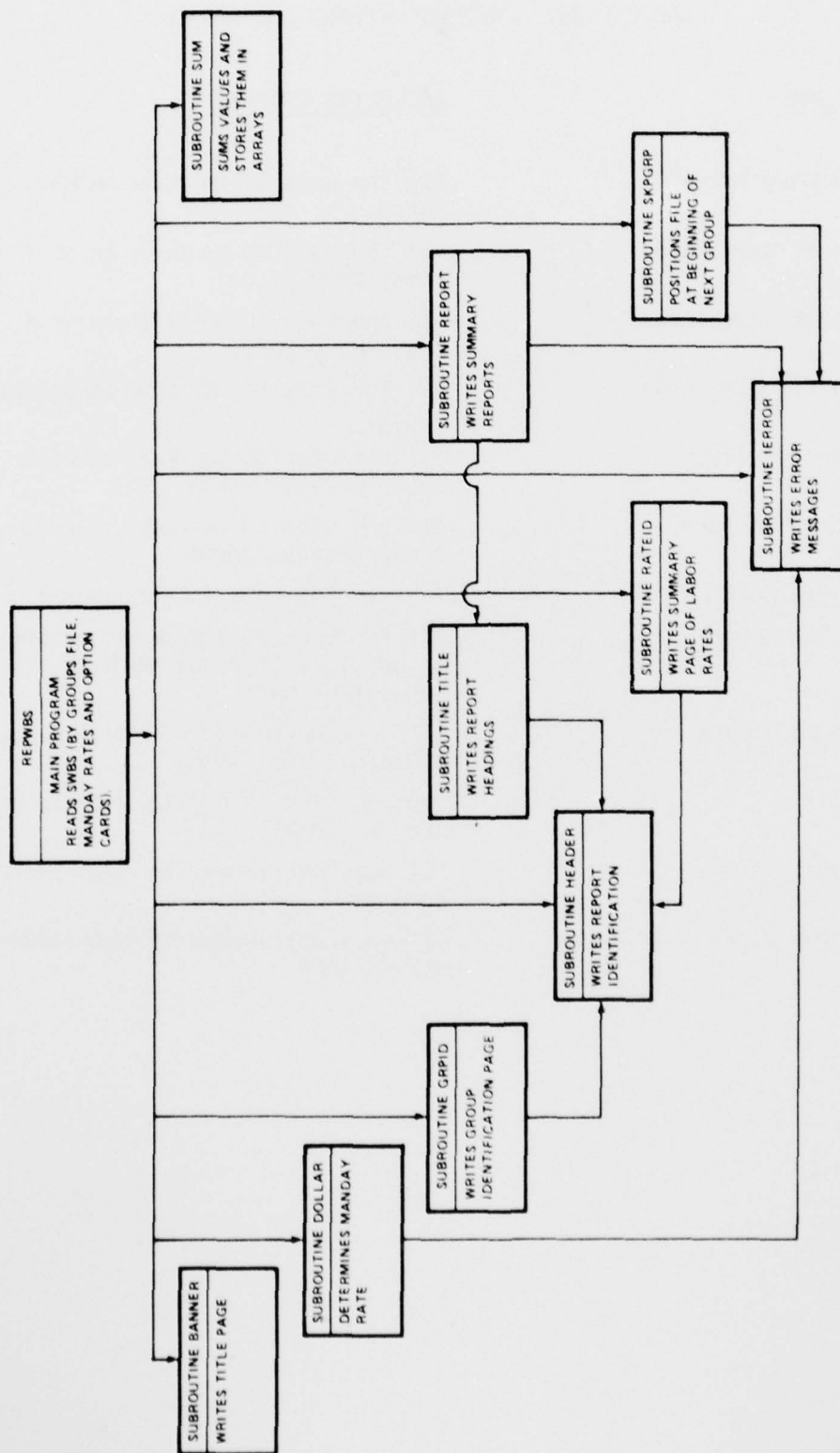


Figure 6.3-1 - PEPWES Hierarchical Diagram

TABLE 6.3-1 - REPORT OPTIONS FOR REPWBS

<u>REPORT NAME</u>	<u>INCLUSIVE CRITERIA</u>
work in Navy Yards	All the work to be done in Navy yards
East Coast Navy Yards	All the work to be done in east coast Navy yards
West Coast Navy Yards	All the work to be done in west coast Navy yards
work in Private Yards	All the work to be done in private yards
East Coast Private	All the work to be done in east coast private yards
West Coast Private	All the work to be done in west coast private yards
Conversion Work	The type of work is Conversion
Active Ship Work	All the work performed on active ships (i.e., type of work is not NRT or MAP)
Reserve Ship Work	All work performed on Naval Reserve Training (NRT) ships
MAP Work	Type of work is Military Assistance Program (MAP)
Repair work	All work attributed to ship/ordnance repairs
Alteration Work	All work attributed to ship/ordnance alterations

Main Program

The function of the main program is to produce data for summary reports of projected workload by Ship Work Breakdown Structure (SWBS) for direct labor mandays, direct labor costs, and material costs. Reports may be generated by ownership, coast, active shipwork, Conversion, Reserve shipwork, Military Assistance Program (MAP) work, and repair and alteration work. All work in any given shipyard may be reported on by ship group and by year. The program uses as input the SWBS (by Groups) File, Manday Rate cards, and Group Option cards.

Subroutine BANNER

This subroutine writes a report title page with the words "SWBS REPORTS". The date and identifying information appear in the upper left corner.

Subroutine DOLLAR

Subroutine DOLLAR uses the year and yard from each record on the SWBS File and determines the appropriate manday rate. Since no rates have been stored for the private yards, the value of \$150 per manday is used. If no manday rates are stored for a particular year and yard, an error message is written and that record is omitted.

Subroutine GRPID

This subroutine writes the group identification page which precedes all reports (for the group). It gives the lower and upper limits of all the ship-type/hull-number range combinations in the group.

Subroutine HEADER

Subroutine HEADER writes report identification information in the upper left corner of each page and the page number in the upper right corner. SWBS reports are identified by the number "63" followed by the date and the identifying information input from the header card.

Subroutine IERROR

The function of subroutine IERROR is to generate error messages indicating lack of data for specific conditions. Table 6.3-2 lists the conditions which cause error messages to be printed and the message that is written on unit 8. A group number of zero will cause the program to stop.

Subroutine RATEID

The purpose of subroutine RATEID is to write a summary page of labor rates which are expressed in dollars per manday. The rates are tabulated for the required years for each shipyard. This subroutine also gives the material factor as a percent of total labor cost.

Subroutine REPORT

Subroutine REPORT uses the group number, the options, and the arrays of data collected by other subroutines and extracts the data elements by SWBS for individual reports. Any "other" shipwork (UNOW) data are tabulated as individual items under a heading of "OTHER". Material costs are calculated as a percent of total direct labor cost. If a report has been requested but no data are found, subroutine IERROR is called and an error message is written.

Subroutine SKPGRP

Subroutine SKPGRP is used to skip all records on the SWBS (by Groups) File relating to a given ship group. A negative value for the fiscal year signals the header record for a new group. When a negative value is encountered, the file is backspaced and is positioned at the beginning of the next group.

Subroutine SUM

This subroutine sums the manday values and labor costs and stores them in arrays for scheduled shipwork and for "other" shipwork (UNOW). Unless repair and alteration data are to be reported on separately, their values are combined. In the arrays for scheduled work, the first subscript refers to the option or to the yard, the second subscript refers to the year, and the third subscript refers to the manday values or to the labor costs. In the UNOW arrays, the first subscript refers to the option or yard, the second subscript refers to the year, and the third subscript refers to (1) total other manday work and (2) total other labor costs.

Subroutine TITLE

This subroutine is called by subroutine REPORT with a flag designating the type of report headings to be written. If there is UNOW work, an extra column for "other" work must be included.

TABLE 6.3-2 - ERROR MESSAGES GENERATED BY REPWBS

<u>Flag</u>	<u>Option</u>	<u>Condition</u>	<u>Printed Message</u>
1	-	Group number is zero or blank	GROUP NUMBER = 0, USE OTHER VERSION OF PRO- GRAM
2	-	End of file mark encountered in reading SWBS (By Groups) File	END OF FILE ENCOUNTERED
3	-	No manday rates found for the required year	NO MANDAY RATES FOR 19xx
4	-	No manday rates found for the required yard	NO MANDAY RATE FOR xxxx
5	1	No data for Navy shipyard work for the required year and group	NO NAVY YARD WORK FOR 19xx FOR GROUP xx
	2	No data for east coast Navy shipyard work for the required year and group	NO EAST COAST NAVY YARD WORK FOR 19xx FOR GROUP xx
	3	No data for west coast Navy shipyard work for the required year and group number	NO WEST COAST NAVY YARD WORK FOR 19xx FOR GROUP xx
	4	No data for private yard work for the required year and group number	NO PRIVATE YARD WORK FOR 19xx FOR GROUP xx
	5	No data for east coast private yard work for the required year and group number	NO EAST COAST PRIVATE YARD WORK FOR 19xx FOR GROUP xx
	6	No data for west coast private yard work for the required year and group number	NO WEST COAST PRIVATE YARD WORK FOR 19xx FOR GROUP xx
	7	No data for Conversion work done for the required year and group number	NO CONVERSION WORK FOR 19xx FOR GROUP xx
	8	No data for Active ship work (all work except NPT and MAP) for the required year and group number	NO ACTIVE SHIP WORK FOR 19xx FOR GROUP xx
	9	No data for Naval Reserve Training work for the re- quired year and group number	NO RESERVE WORK FOR 19xx FOR GROUP xx

ERROR MESSAGES (Continued)

<u>Flag</u>	<u>Option</u>	<u>Condition</u>	<u>Printed Message</u>
5	10	No data for Military Assistance Program work for the required year and group number	NO MAP WORK FOR 19xx FOR GROUP xx
	11	No data for any of the ships in the required group	NO DATA FOR GROUP xx
6	-	No data for a specified yard for the required group	NO DATA FOR xxxxx FOR GROUP xx

6.3.2 RUN SET-UP

The following set-up is used to run the REPWBS program on the IBM 360/370 computer:

```
//NVSWS JOB (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOB LIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=REPWBS
//GO.FT05F001 DD *
```

REPWBS card inputs (unit 5)

```
//GO.FT06F001 DD SYSOUT=A (SWBS REPORTS)
//GO.FT08F001 DD SYSOUT=A (ERROR MESSAGES)
//GO.FT12F001 DD DSN=NVS01.SWBS.GROUPS.DATA,DISP=SHR (INPUT FILE)
```

6 3.3 INPUTS

Card inputs are made using unit 5. Section 6.3.3.1 shows the format for the input cards.

Unit 5 - Card inputs which: (1) give identifying report information and desired years, (2) give manday rates, (3) select group numbers and report options, (4) request yards to be reported on.

The following additional unit is used to input information from a disk file previously created by the program PREWBS:

Unit 12 - SWBS (by Groups) Data File.

The format for this file is given in Section 6.3.3.2.

6.3.3.1 Unit 5 - Card Inputs

Header Card. This card must appear as the first input card. Its format is:

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
DATE(1-3)	Date (mo/dy/yr)	1-12	3A4
COMENT(1-5)	Report identification information	15-34	5A4
IYEAR(1-5)	Array of years to be reported on	40-53	5I2
IMAT	Percent of direct labor costs for material	72-74	I3

Manday Rate Cards. The Manday Rate Deck consists of one card for each shipyard giving manday rates for the fiscal years to be reported on. A Manday Rate Terminator Card follows the final Manday Rate Card.

Manday Rate Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IYARD	Yard name	1-5	A5
RATE(1-5)	Array of manday rates for five fiscal years	6-40	5(1X,F6.2)

Manday Rate Terminator Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
LAST	Terminator; contains the characters "LAST"	1-4	A4

Group Option Cards. The Group Option Deck describes the various report options. There are two cards for each required group: a type A card which describes the report options, and a type B card which designates the yards to be reported on. The Group Option Deck is terminated with a negative group number.

Type A Group Option Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IGRP	Group number	1-3	I3

	<u>To Request Reports on:</u>	<u>Punch Characters:</u> *	
ZNAVWK	Work in Navy Yards	"NAV" 5-7	A3
ZNAVE	East Coast Navy Yards	"NE" 9-10	A2
ZNAVW	West Coast Navy Yards	"NW" 12-13	A2
ZPRI	Work in Private Yards	"PRI" 15-17	A3
ZPRIE	East Coast Private	"PE" 19-20	A2
ZPRIW	West Coast Private	"PW" 22-23	A2
ZCON	Conversion work	"C" 25	A1
ZACT	Active Ship Work	"ACT" 29-31	A3
ZRES	Reserve Ship Work	"RES" 33-35	A3
ZZMAP	Map Work	"MAP" 37-39	A3
ZREP	Repair Work	"REP" 41-43	A3
ZALT	Alteration Work	"ALT" 45-47	A3

*Variable contains the noted characters if that report is requested; otherwise those fields are left blank.

Type B Group Option Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IYDSEL(1-13)	Array of yards to be reported on	1-78	13(A5,1X)

6.3.3.2 Unit 12 - SWBS (by Groups) Data File

The program PREWBS sorts the SWBS File, created by program XPLODE, by ship groupings. A Group Definition Record precedes the ship availability data for those ships in the group. Each record contains direct labor repair mandays and direct labor alteration mandays by SWBS.

The SWBS (by Groups) File is sorted in ascending order by the following parameters:

Group number

Fiscal year

Since this is a binary file, the format presented is given only as a guide to indicate the size of the variables.

Group Definition Records. The format of each Group Definition Record on the SWBS (by Groups) File is as follows:

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
DUM	Double precision dummy variable	1	(A8)
IDUM1	Dummy variable	2	(A3)
DUM1	Double precision dummy variable	3	(A5)
IGROUP	Group number	4	(I3)
IDUM2	Variable contains zero	5	(I2)
SHIP(1,1)	Lower bound of first ship type in a group	6	(A4)
IHULL(1,1)	Lower bound of first hull number in a group	7	(A4)
SHIP(1,2)	Upper bound of first ship type in a group	8	(A4)
IHULL(1,2)	Upper bound of first hull number in a group	9	(A4)
SHIP(2,1)	Lower bound of second ship type in a group	10	(A4)

Group Definition Records. (Continued)

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
IHULL(2,1)	Lower bound of second hull number in a group	11	(A4)
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(6,2)	Upper bound of sixth ship type in a group	28	(A4)
IHULL(6,2)	Upper bound of sixth hull number in a group	29	(A4)
FILLER(1-3)	Dummy array	30-33	(3A4)

SWBS Record. Each SWBS Record corresponds to a DMAF Record. Any DMAF record describing ships specified by the Group Definition Record are included. The format of each SWBS Record is as follows:

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
ISHULL	Ship-type/hull-number	1	(A8)
ITYPWK	Type work	2	(A3)
IYD	Yard	3	(A5)
IGROUP	Group number	4	(I3)
IFYR	Fiscal year (this record)	5	(I2)
OWN	Yard ownership indicator	6	(A1)
COAST	Coast	7	(A1)
IPERD	Period (this record)	8	(I1)
ICONT	Continuation indicator	9	(A1)
ISTRRT	Availability start date (mo/dy/yr)	10	(I6)
IEND	Availability end date (mo/dy/yr)	11	(I6)
ISPEC	Specialization category	12	(A3)
WVALR(1-9)	Total direct repair man-days for SWBS	13-21	(9F10.2)

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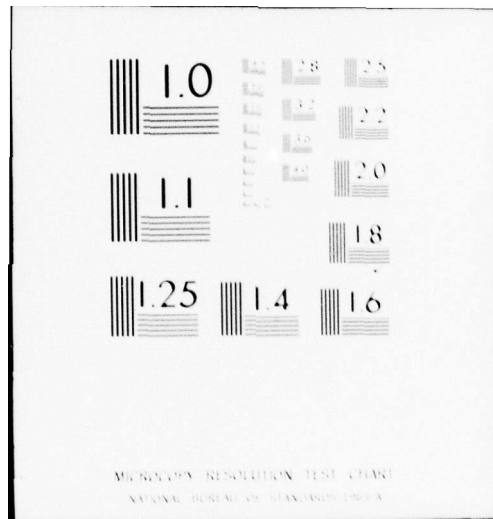
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SWBS RECORD. (Continued)

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
WVALA(1-9)	Total direct alteration mandays for SWBS	22-30	(9F10.2)
MATREP(10,20)	Fraction of total direct repair mandays required for "other direct"	31	(F10.6)
MATALT(10,20)	Fraction of total direct alteration mandays re- quired for "other direct"	32	(F10.6)

6.3.4 OUTPUT

The following units are used by REPWBS for generating hard-copy output:

Unit 6 - Summary SWBS reports.

Unit 8 - Error messages.

Section 6.3.7 shows a sample of these outputs.

6.3.5 PROGRAM LISTING

```

C*****PROGRAM REPWBS(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE8,TAPE12)**** 10
C
C    PROGRAMMER JEAN ST LAURENT - DTNSROC - CODE 1863                      REPW 20
C    WRITTEN MAY 1976                                                         REPW 30
C                                                                              REPW 40
C                                                                              REPW 50
C    REPWBS IS A REPORT GENERATOR FOR TOTAL DIRECT LABOR MANDAYS             REPW 60
C    AND MATERIAL DOLLARS BY SWBS FOR SHIP GROUPINGS,                       REPW 70
C    BROKEN DOWN BY FISCAL YEAR                                              REPW 80
C    SHIP GROUPINGS (IGRP) AND YEAR (IYEAR) ARE INPUT VALUES               REPW 90
C    THE PROGRAM PREWBS IS A PREPROCESSOR FOR REPWBS WHICH SORTS            REPW 100
C    THE SWBS DATA FILE BY SHIP GROUPINGS                                  REPW 110
C                                                                              REPW 120
C    IN ADDITION TO A GROUP TOTAL REPORT, THE FOLLOWING OPTIONS              REPW 130
C    ARE AVAILABLE                                                            REPW 140
C    NAVY WORK - INPUT AS NAV - USED AS IOPT = 1                            REPW 150
C    NAVY EAST - INPUT AS NE - USED AS IOPT = 2                             REPW 160
C    NAVY WEST - INPUT AS NW - USED AS IOPT = 3                             REPW 170
C    PRIVATE WORK - INPUT AS PRI - USED AS IOPT = 4                         REPW 180
C    PRIVATE EAST - INPUT AS PE - USED AS IOPT = 5                         REPW 190
C    PRIVATE WEST - INPUT AS PW - USED AS IOPT = 6                         REPW 200
C    CONVERSION WORK - INPUT AS CON - USED AS IOPT = 7                     REPW 210
C    ACTIVE SHIPS - INPUT AS ACT - USED AS IOPT = 8                         REPW 220
C    (ACTIVE WORK IS ALL WORK EXCEPT NRT AND MAP)                         REPW 225
C    RESERVE SHIPS - INPUT AS RES - USED AS IOPT = 9                       REPW 230
C    MAP WORK - INPUT AS MAP - USED AS IOPT = 10                           REPW 240
C    REPAIR WORK - INPUT AS REP - USED AS IOPT = 11                        REPW 250
C    ALT WORK - INPUT AS ALT - USED AS IOPT = 12                           REPW 260
C                                                                              REPW 270
C    ALSO, SUMMARIES MAY BE MADE BY YARD                                    REPW 280
C    UP TO 13 DIFFERENT YARDS MAY BE SELECTED                              REPW 290
C    THEY ARE INPUT IN THE IYDSEL ARRAY                                     REPW 300
C                                                                              REPW 310
C    TAPE ASSIGNMENTS                                                         REPW 320
C    -----                                                                  REPW 330
C    TAPE5 - INPUT - CARDS                                                  REPW 340
C    TAPE6 - OUTPUT                                                         REPW 350
C    TAPE8 - OUTPUT - ERRORS, ONLY                                         REPW 360
C    TAPE12 - INPUT OF SWBS DATA FILE SORTED BY PREWBS                   REPW 370
C    -----                                                                  REPW 380
C                                                                              REPW 390
C    REAL*8 IYDSEL, IYD, LAST, ISHULL, IYARD, DUM1, IDBL, IBLANK           **** 400
C    REAL ITPWK, IUNOW                                                     REP 405
C                                                                              REPW 410
C    COMMON/IDENT/COMENT(5), DATE(3)                                       REPW 420
C    COMMON/IDATA/ SHIP(6,2), IHULL(6,2)                                   REPW 430
C    COMMON /WORK/ ARRAY1(13,5,18), ARRAY2(13,5,18), ARRAYD(13,5,18),     REPW 440
C    1 ARRAYM(13,5,18), UARRAY(13,5,2), UYARD(13,5,2)                     REPW 450
C    COMMON /OTHER/ IFLAG(15,5), IFLAGG(15,5), IUNOS(15,5), IUNOSS(15,5)  REPW 460
C    COMMON /MISC/ IYEAR(5), RATE(15,5)                                    REPW 470
C    COMMON /NPUT/ IYDSEL(13), IYARD(15)                                    REPW 480
C    DIMENSION IOPT(14), FILLER(3), VALUES(18)                            REPW 490
C                                                                              REPW 500
C    DATA ZN/1HN/                                                         REPW 510
C    DATA ZNAVY/3HNAV/                                                    REPW 520
C    DATA EAST/1NE/                                                       REPW 530

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DATA WEST/1MW/	REPW 540
DATA ZNE/2MNE/	REPW 550
DATA ZNW/2MWW/	REPW 560
DATA PRIV/3MPRI/	REPW 570
DATA PRI/1HP/	REPW 580
DATA ZPE/2MPE/	REPW 590
DATA ZPW/2MPW/	REPW 600
DATA COM/3HCOM/	REPW 610
DATA CONV/3MC /	REPW 620
DATA ACT/3MACT/	REPW 630
DATA RES/3HRES/	REPW 640
DATA ZNRT/3MNRT/	REPW 650
DATA ZMAP/3MHAP/	REPW 660
DATA REP/3HREP/	REPW 670
DATA ALT/3HALT/	REPW 680
DATA IBLANK/8H	REPW 690
DATA LAST/5MLAST /	REPW 700
DATA IUNOW/3HON /	REPW 730
C INITIALIZE ARRAYS	REPW 750
DO 15 J = 1,13	REPW 760
DO 10 I = 1,5	REPW 770
IYEAR(I) = 0	REPW 780
IYARD(J) = IBLANK	REPW 790
RATE(J,I) = 0	REPW 800
10 CONTINUE	REPW 810
15 CONTINUE	REPW 820
IONCE = 0	REPW 830
C READ HEADER CARD	REPW 840
READ(5,100) DATE, (COMENT(I),I=1,5), (IYEAR(I),I=1,5),IMAT	REPW 850
100 FORMAT(3A4,2X, 5A4,5X, 5(I2,1X), 17X, I3)	REPW 860
C READ LABOR RATES FOR EACH YARD	REPW 870
DO 20 I = 1,15	REPW 880
READ (5,101) IYARD(I), (RATE(I,J), J=1,5)	REPW 890
101 FORMAT(A5, 5(1X,F6.2))	REPW 900
II = I	REPW 910
IF(IYARD(I) .EQ. LAST) GO TO 25	REPW 920
20 CONTINUE	REPW 930
NOYARD = II	REPW 940
GO TO 27	REPW 950
25 NOYARD = II - 1	REPW 960
27 CALL HEADER(1)	REPW 970
CALL BANNER	REPW 980
C DETERMINE NUMBER OF YEARS TO BE PROCESSED	REPW 990
DO 30 I = 1,5	REPW1000
II = I	REPW1010
IF(IYEAR(I).EQ.0) GO TO 35	REPW1020
30 CONTINUE	REPW1030
NYEAR = II	REPW1040
GO TO 38	REPW1050
35 NYEAR = II - 1	REPW1060
C WRITE SUMMARY PAGE OF MANDAY RATES	REPW1070
38 CALL RATEID(NOYARD, NYEAR, IMAT)	REPW1080
40 DO 45 I = 1,15	REPW1090
DO 43 J = 1,5	REPW1100
IFLAG(I,J) = 0	REPW1110
	REPW1120
	REPW1130
	REPW1140
	REPW1150
	REPW1160

IFLAGG(I,J) = 0	REPW1170
IUNOS(I,J) = 0	REPW1180
IUNOSS(I,J) = 0	REPW1190
43 CONTINUE	REPW1200
45 CONTINUE	REPW1210
DO 48 J = 1,13	REPW1220
IYDSEL(J) = IBLANK	REPW1230
48 CONTINUE	REPW1240
C	REPW1250
C SET FLAG FOR UNOS WORK	REPW1260
III = 0	REPW1270
IEXTRA = 0	REPW1280
C	REPW1290
C READ 1ST GROUP CARD WITH OPTIONS	REPW1300
READ(5,102) IGRP, ZNAVWK, ZNAVE, ZNAVW, ZPRI, ZPRIE, ZPRIW, ZCON,	REPW1310
1 ZACT, ZRES, ZZMAP, ZREP, ZALT	REPW1320
102 FORMAT(13, 1X, A3, 2(1X,A2), 1X, A3, 2(1X,A2), 6(1X,A3))	REPW1330
IF(IGRP.LT.1) STOP	REPW1340
IF(IGRP.EQ.0) CALL IERROR(1,IDUMMY,IDUM3,IDUM4,IOBL)	REPW1350
C	REPW1360
C READ 2ND GROUP CARD WITH YARDS	REPW1370
READ(5,103) (IYDSEL(I),I=1,13)	REPW1380
103 FORMAT(13(A5,1X))	REPW1390
C	REPW1400
C SET FLAG FOR VARIOUS OPTIONS	REPW1410
DO 50 I = 1,14	REPW1420
IOPT(I) = 0	REPW1430
50 CONTINUE	REPW1440
IF(ZNAVWK.EQ.ZNAVY) IOPT(1) = 1	REPW1450
IF(ZNAVE.EQ.ZNE) IOPT(2) = 2	REPW1460
IF(ZNAVW.EQ.ZNW) IOPT(3) = 3	REPW1470
IF(ZPRI.EQ.PRIV) IOPT(4) = 4	REPW1480
IF(ZPRIE.EQ.ZPE) IOPT(5) = 5	REPW1490
IF(ZPRIW.EQ.ZPW) IOPT(6) = 6	REPW1500
IF(ZCON.EQ.CON) IOPT(7) = 7	REPW1510
IF(ZACT.EQ.ACT) IOPT(8) = 8	REPW1520
IF(ZRES.EQ.RES) IOPT(9) = 9	REPW1530
IF(ZZMAP.EQ.ZMAP) IOPT(10) = 10	REPW1540
IF(ZREP.EQ.REP) IOPT(11) = 11	REPW1550
IF(ZALT.EQ.ALT) IOPT(12) = 12	REPW1560
C	REPW1570
C DETERMINE NUMBER OF YARDS TO BE PROCESSED	REPW1580
DO 60 I = 1,13	REPW1590
II = I	REPW1600
IF(IYDSEL(II).EQ.IBLANK) GO TO 65	REPW1610
63 CONTINUE	REPW1620
NYDS = II	REPW1630
GO TO 70	REPW1640
65 NYDS = II - 1	REPW1650
C	REPW1660
C INITIALIZE DATA ARRAYS	REPW1670
70 DO 85 I = 1,13	REPW1680
DO 80 J = 1,5	REPW1690
DO 75 K = 1,18	REPW1700
DO 72 L = 1,2	REPW1710
ARRAY1(I,J,K) = 0.0	REPW1720
ARRAY2(I,J,K) = 0.0	REPW1730
ARRAYD(I,J,K) = 0.0	REPW1740
ARRAYM(I,J,K) = 0.0	REPW1750
UARRAY(I,J,L) = 0.0	REPW1760

UYARD(I,J,L) = 0.0	REP1770
72 CONTINUE	REP1780
75 CONTINUE	REP1790
80 CONTINUE	REP1800
85 CONTINUE	REP1810
C	REP1820
C READ HEADER RECORD OF FILE	REP1830
C**90 READ(12) DUM1, IDUM1, DUM1, IGROUP, IDUM2, ((SHIP(I,J), IMULL(I,J),	****1840
C****1 J=1,2), I=1,6), (FILLER(K),K=1,3)	****1850
90 READ(12,END=400) DUM1, IDUM1, DUM1, IGROUP, IDUM2, ((SHIP(I,J),	****1860
1 IMULL(I,J),J=1,2), I=1,6), (FILLER(K),K=1,3)	****1870
C****IF(EOF(12).NE.0) GO TO 400	****1880
C	REP1890
C CHECK ON MATCH OF GROUP NUMBER	REP1900
IF(IGRP.EQ.IGROUP) GO TO 95	REP1910
CALL SKPGRP(IONCE)	REP1920
GO TO 90	REP1930
C	REP1940
C WRITE SHIP GROUP IDENTIFICATION PAGE	REP1950
95 CALL GRPID(IGROUP)	REP1960
C	REP1970
C READ DATA RECORD	REP1980
C*200 READ(12) ISHULL, ITPWK, IVD, IGROUP, IFYR, OWN, COAST, IPERO,	****1990
C****1 ICONT, ISTRT, IEND, ISPEC, (VALUES(I),I=1,10), MATREP,MATALT	****2000
200 READ(12,END=400) ISHULL, ITPWK, IVD, IGROUP, IFYR, OWN, COAST,	****2010
1 IPERO, ICONT, ISTRT, IEND, ISPEC, (VALUES(I),I=1,10),MATREP,	****2020
I MATALT	****2030
C****IF(EOF(12) .NE.0) GO TO 400	****2040
C	REP2050
C CHECK FOR END OF THIS SHIP GROUPING	REP2060
IF(IFYR.LT.0) GO TO 360	REP2070
C REVERSE TEST FOR 360	
C**** IF(IFYR.LE.0) GO TO 360	REP2070
C	REP2080
C CHECK ON YEAR	REP2090
DO 205 I = 1,NYEAR	REP2100
JJ = I	REP2110
IF(IFYR.EQ.IYEAR(I)) GO TO 208	REP2120
205 CONTINUE	REP2130
GO TO 200	REP2140
C DETERMINE CORRECT MANDAY RATE FOR YARD AND YEAR	REP2150
C*238 CALL DOLLAR(IYD,IFYR,OWN,YDRATE), RETURNS(200)	****2160
208 CALL DOLLAR(IYD,IFYR,OWN,YDRATE,\$200)	****2170
C	REP2180
C CHECK VARIOUS OPTIONS	REP2190
DO 330 I = 1,12	REP2200
II = IOPT(I) + 1	REP2210
GO TO (330,210,220,230,240,250,260,270,280,290,300,215,215), II	REP2220
210 IF(OWN.NE.ZN) GO TO 330	REP2230
215 CONTINUE	REP2240
IF(ITYPWK.NE.IUNOW) GO TO 210	REP2246
IUNOS(I,JJ) = 1	REP2250
III = 1	REP2260
GO TO 219	REP2270
218 IFLAG(I,JJ) = 1	REP2280
C	REP2290
C STORE VALUES IN AN ARRAY WITH SUBSCRIPT FOR OPTION AND YEAR	REP2300
219 CALL SUM(II,VALUES,IVD,IFYR,YDRATE,III,IEXTRA)	REP2310
III = 0	REP2320
GO TO 330	REP2330

220 IF(OMN.EQ.ZN .AND. COAST.EQ.EAST) GO TO 215	REP2340
GO TO 330	REP2350
230 IF(OMN.EQ.ZN .AND. COAST.EQ.WEST) GO TO 215	REP2360
GO TO 330	REP2370
240 IF(OMN.EQ.PRI) GO TO 215	REP2380
GO TO 330	REP2390
250 IF(OMN.EQ.PRI .AND. COAST.EQ.EAST) GO TO 215	REP2400
GO TO 330	REP2410
260 IF(OMN.EQ.PRI .AND. COAST.EQ.WEST) GO TO 215	REP2420
GO TO 330	REP2430
270 IF(ITYPWK.EQ.CONV) GO TO 218	REP2440
GO TO 330	REP2450
280 IF(ITYPWK.NE.ZNRT .AND. ITYPWK.NE.ZMAP) GO TO 215	REP2460
GO TO 330	REP2470
290 IF(ITYPWK.EQ.ZNRT) GO TO 218	REP2480
GO TO 330	REP2490
330 IF(ITYPWK.EQ.ZMAP) GO TO 218	REP2500
330 CONTINUE	REP2510
C	REP2520
C GROUP TOTAL	REP2530
II = 1	REP2540
IF(ITYPWK.NE.IUNOW) GO TO 335	REP2550
IUNOS(13,JJ) = 1	REP2560
III = 1	REP2570
GO TO 340	REP2580
335 IFLAG(13,JJ) = 1	REP2590
340 CALL SUM(II,VALUES,IYD,IFYR,YDRATE,III,IEXTRA)	REP2600
III = 0	REP2610
C	REP2620
C CHECK ON YARDS THAT MATCH	REP2630
DO 355 J = 1, NYDS	REP2640
IF(IYD.NE.IYDSEL(J)) GO TO 355	REP2650
II = 14	REP2660
IF(ITYPWK.NE.IUNOW) GO TO 345	REP2670
IUNOS(J,JJ) = 1	REP2680
III = 1	REP2690
GO TO 350	REP2700
345 IFLAGG(J,JJ) = 1	REP2710
C	REP2720
C STORE VALUES IN AN ARRAY WITH SUBSCRIPT FOR YARD AND YEAR	REP2730
350 CALL SUM(II,VALUES,IYD,IFYR,YDRATE,III,IEXTRA)	REP2740
III = 0	REP2750
355 CONTINUE	REP2760
GO TO 200	REP2770
C	REP2780
C CALL REPORT FOR THIS SHIP GROUPING	REP2790
360 CALL REPORT(NYEAR,IOP,INAT,NYDS,IEXTRA,IGRP)	REP2800
BACKSPACE 12	REP2810
GO TO 40	REP2820
C	REP2830
C ERROR PATH FOR END OF FILE	REP2840
400 CALL REPORT(NYEAR,IOP,INAT,NYDS,IEXTRA,IGRP)	REP2845
CALL IERROR(2,IDUMMY,IDUM3,IDUM4,IOBL)	REP2850
STOP	REP2860
END	REP2870

	SUBROUTINE BANNER	BANN 10
C		BANN 20
C	SUBROUTINE TO PRINT BANNER PAGE	BANN 30
C		BANN 40
	WRITE(6,100)	BANN 50
100	FORMAT(////, 27X, 79(1HX) //,	BANN 60
1	28X, 77H XXXX X X XXXX XXXX XXXX XXXXX XXXX XXX XXX	BANN 70
2	XXXX XXXXX XXXX/	BANN 80
3	28X, 77HX X X X X X X X X X X X X X X X X X	BANN 90
4	X X X X X /	BANN 100
5	28X, 77HX X X X X X X X X X X X X X X X X X	BANN 110
6	X X X X X /	BANN 120
7	28X, 77H XXX X X X XXXX XXX XXXX XXXX XXXX X X	BANN 130
8	XXXX X XXX /	BANN 140
9	28X, 77H X X X X X X X X X X X X X X X X X	BANN 150
A	X X X X X /	BANN 160
B	28X, 77H X XX XX X X X X X X X X X X X X X X	BANN 170
C	X X X X X /	BANN 180
D	28X, 77HXXXX X X XXXX XXXX X X XXXXX X XXX	BANN 190
E	X X X XXXX //	BANN 200
F	27X, 79(1HX) /)	BANN 210
	RETURN	BANN 220
	END	BANN 230

	C*****SUBROUTINE DOLLAR(IYD,IFYR,OWN,YORATE), RETURNS (NONE)	**** 10
	SUBROUTINE DOLLAR(IYD,IFYR,OWN,YORATE,*)	**** 20
C		DOLL 30
C	SUBROUTINE TO DETERMINE CORRECT MANDAY RATE FOR YARD AND YEAR	DOLL 40
C		DOLL 50
	REAL*8 IYD, IYARD, IOBL, IYDSEL	**** 60
C		DOLL 70
	COMMON /MISC/ IYEAR(5), RATE(15,5)	DOLL 80
	COMMON /INPUT/ IYDSEL(13), IYARD(15)	DOLL 90
	DATA PRI/1HP/	DOLL 100
	DO 10 I = 1,5	DOLL 110
	IF(IFYR.EQ.IYEAR(I)) GO TO 15	DOLL 120
10	CONTINUE	DOLL 130
	CALL IERROR(3,IFYR,IOUM1,IOUM2,IOBL)	DOLL 140
C*****	RETURN NONE	**** 150
	RETURN 1	**** 160
15	DO 20 J = 1,15	DOLL 170
	IF(IYD.EQ.IYARD(J)) GO TO 30	DOLL 180
20	CONTINUE	DOLL 190
C		DOLL 200
C	IF NO RATE GIVEN FOR PRIVATE YARD, USE 150.	DOLL 210
	IF(OWN.NE.PRI) GO TO 25	DOLL 220
	YORATE = 150.	DOLL 230
	RETURN	DOLL 240
25	CALL IERROR(4,IOUMV,IOUM1,IOUM2,IYD)	DOLL 250
C*****	RETURN NONE	**** 260
	RETURN 1	**** 270
30	YORATE = RATE(J,I)	DOLL 280
	RETURN	DOLL 290
	END	DOLL 300

C	SUBROUTINE GRPID(IGROUP)	GRPI 10
C		GRPI 20
C	SUBROUTINE TO PRINT GROUP DEFINITIONS	GRPI 30
	COMMON/IDENT/COMENT(5), DATE(3)	GRPI 40
	COMMON/IDATA/ SHIP(6,2), IHULL(6,2)	GRPI 50
	DATA BLANK/4H /	GRPI 60
	CALL HEADER(1)	GRPI 70
	WRITE(6,100)	GRPI 80
	100 FORMAT(////, 50X, 38H***** , /)	GRPI 90
	WRITE(6,101) IGROUP	GRPI 100
	101 FORMAT(1H , 61X, 11HSHIP GROUP , I3, /, T63, 3(4H----), 2H--, //)	GRPI 110
	DO 10 J = 1,6	GRPI 120
	IF(SHIP(J,1).EQ.BLANK) GO TO 20	GRPI 130
	WRITE(6,102) (SHIP(J,K), IHULL(J,K),K=1,2)	GRPI 140
	102 FORMAT(1H , 56X, A4,1X,A4,2X,1H-,3X,A4,1X,A4, /)	GRPI 150
	13 CONTINUE	GRPI 160
	20 WRITE(6,103)	GRPI 170
	103 FORMAT(/, 50X, 38H*****)	GRPI 180
	RETURN	GRPI 190
	END	GRPI 200
		GRPI 210

C	SUBROUTINE HEADER(NOPG)	HEAD 10
C		HEAD 20
C	SUBROUTINE TO WRITE REPORT IDENTIFICATION AND NUMBER PAGES	HEAD 30
C	COMMON/IDENT/COMENT(5), DATE(3)	HEAD 40
	IF(NOPG.GT.1) GO TO 10	HEAD 50
	IPAGE = 0	HEAD 60
	WRITE(6,100) DATE, COMENT	HEAD 70
	100 FORMAT(1H1,1X, 4HDATE, 2X, 3A4, / , 2X, 5A4)	HEAD 80
	RETURN	HEAD 90
	10 IPAGE = IPAGE + 1	HEAD 100
	WRITE(6,101) DATE, IPAGE, COMENT	HEAD 110
	101 FORMAT(1H1, 1X,10HREPORT: 63, 2X, 5HDATE: ,1X,3A4, 85X, 4HPAGE,	HEAD 120
	1 I4, /, 2X, 5A4)	HEAD 130
	RETURN	HEAD 140
	END	HEAD 150
		HEAD 160

C	SUBROUTINE IERROR (N,IDUMMY,IDUM1,IDUM2,IDBL)	IERR 10
C		IERR 20
C	SUBROUTINE TO PRINT OUT ERROR MESSAGES	IERR 30
C		IERR 40
	REAL*8 IDBL	**** 50
C		IERR 60
	GO TO (10,20,30,40,50,213), N	IERR 70
	10 WRITE(8,100)	IERR 80
	100 FORMAT(1X, 53H * * * GROUP NUMBER = 0, USE OTHER VERSION OF PROGRAM	IERR 90
	1M)	IERR 100
	STOP	IERR 110
	20 WRITE(8,101)	IERR 120
	101 FORMAT(1X, 30H * * * END OF FILE ENCOUNTERED)	IERR 130
	RETURN	IERR 140
	30 WRITE(8,102) IDUMMY	IERR 150
	102 FORMAT(1X, 29H * * * NO MANDAY RATES FOR 19, I2)	IERR 160
	RETURN	IERR 170
	40 WRITE(8,103) IDBL	IERR 180
	103 FORMAT(1X, 26H * * * NO MANDAY RATE FOR , A5)	IERR 190
	RETURN	IERR 200
	50 GO TO (55,60,65,70,75,80,85,90,95,200,205), IDUMMY	IERR 210
	55 WRITE(8,104) IDUM1, IDUM2	IERR 220
	104 FORMAT(1X, 31H * * * NO NAVY YARD WORK FOR 19, I2, 1X,	IERR 230
	1 10HFOR GROUP , I3)	IERR 240
	RETURN	IERR 250
	60 WRITE(8,105) IDUM1, IDUM2	IERR 260
	105 FORMAT(1X, 42H * * * NO EAST COAST NAVY YARD WORK FOR 19, I2,	IERR 270
	1 1X, 10HFOR GROUP , I3)	IERR 280
	RETURN	IERR 290
	65 WRITE(8,106) IDUM1, IDUM2	IERR 300
	106 FORMAT(1X, 42H * * * NO WEST COAST NAVY YARD WORK FOR 19, I2,	IERR 310
	1 1X, 10HFOR GROUP , I3)	IERR 320
	RETURN	IERR 330
	70 WRITE(8,107) IDUM1, IDUM2	IERR 340
	107 FORMAT(1X, 34H * * * NO PRIVATE YARD WORK FOR 19, I2, 1X,	IERR 350
	1 10HFOR GROUP , I3)	IERR 360
	RETURN	IERR 370
	75 WRITE(8,108) IDUM1, IDUM2	IERR 380
	108 FORMAT(1X, 45H * * * NO EAST COAST PRIVATE YARD WORK FOR 19, I2,	IERR 390
	1 1X, 10HFOR GROUP , I3)	IERR 400
	RETURN	IERR 410
	80 WRITE(8,109) IDUM1, IDUM2	IERR 420
	109 FORMAT(1X, 45H * * * NO WEST COAST PRIVATE YARD WORK FOR 19, I2,	IERR 430
	1 1X, 10HFOR GROUP , I3)	IERR 440
	RETURN	IERR 450
	85 WRITE(8,110) IDUM1, IDUM2	IERR 460
	110 FORMAT(1X, 32H * * * NO CONVERSION WORK FOR 19, I2, 1X,	IERR 470
	1 10HFOR GROUP , I3)	IERR 480
	RETURN	IERR 490
	90 WRITE(8,111) IDUM1, IDUM2	IERR 500
	111 FORMAT(1X, 33H * * * NO ACTIVE SHIP WORK FOR 19, I2, 1X,	IERR 510
	1 10HFOR GROUP , I3)	IERR 520
	RETURN	IERR 530
	95 WRITE(8,112) IDUM1, IDUM2	IERR 540
	112 FORMAT(1X, 34H * * * NO RESERVE SHIP WORK FOR 19, I2, 1X,	IERR 550
	1 10HFOR GROUP , I3)	IERR 560
	RETURN	IERR 570
	200 WRITE(8,113) IDUM1, IDUM2	IERR 580
	113 FORMAT(1X, 25H * * * NO MAP WORK FOR 19, I2, 1X,	IERR 590

1 10HFOR GROUP , I3)	IERR 600
RETURN	IERR 610
205 WRITE(8,114) IDUM2	IERR 620
114 FORMAT(1X, 25H * * * NO DATA FOR GROUP , I3)	IERR 630
RETURN	IERR 640
210 WRITE(8,115) IDBL, IDUM2	IERR 650
115 FORMAT(1X, 19H * * * NO DATA FOR , A5, 1X, 10HFOR GROUP , I3)	IERR 660
RETURN	IERR 670
END	IERR 680

	SUBROUTINE RATEID(INOYARD, NYEAR, IMAT)	RATE 13
C		RATE 20
C	SUBROUTINE TO WRITE SUMMARY PAGE FOR MANDAY RATES	RATE 30
C	AND MATERIAL FACTOR	RATE 40
C		RATE 50
	REAL*8 IYARD, IYDSEL	**** 60
C		RATE 70
	COMMON /INPUT/ IYDSEL(13), IYARD(15)	RATE 80
	COMMON /MISC/ IYEAR(5), RATE(15,5)	RATE 90
	CALL HEADER(1)	RATE 100
	WRITE(6,100)	RATE 110
100	FORMAT(////, 22X, 90H.....)	RATE 120
1, /)	RATE 130
	WRITE(6,101)	RATE 140
101	FORMAT(1H , 52X, 23HLABOR RATES IN \$/MANDAY /)	RATE 150
	IF(NYEAR.NE.5) GO TO 20	RATE 160
	WRITE(6,102) (IYEAR(I),I=1,5)	RATE 170
102	FORMAT(1H , 33X, 4HYARD, 5(3X,8HYEAR 19,12) / T32, 4H----,	RATE 180
1	5(3X, 2(4H----), 2H--)	RATE 190
	GO TO 60	RATE 200
20	IF(NYEAR.NE.4) GO TO 30	RATE 210
	WRITE(6,103) (IYEAR(I),I=1,4)	RATE 220
103	FORMAT(1H , 36X, 4HYARD, 4(3X,8HYEAR 19,12) / T38, 4H----,	RATE 230
1	4(3X, 2(4H----), 2H--)	RATE 240
	GO TO 60	RATE 250
30	IF(NYEAR.NE.3) GO TO 40	RATE 260
	WRITE(6,104) (IYEAR(I),I=1,3)	RATE 270
104	FORMAT(1H , 42X, 4HYARD, 3(3X,8HYEAR 19,12) / T44, 4H----,	RATE 280
1	3(3X, 2(4H----), 2H--)	RATE 290
	GO TO 60	RATE 300
40	IF(NYEAR.NE.2) GO TO 50	RATE 310
	WRITE(6,105) (IYEAR(I),I=1,2)	RATE 320
105	FORMAT(1H , 48X, 4HYARD, 2(3X,8HYEAR 19,12) / T50, 4H----,	RATE 330
1	2(3X, 2(4H----), 2H--)	RATE 340
	GO TO 60	RATE 350
50	WRITE(6,106) IYEAR(1)	RATE 360
106	FORMAT(1H , 54X, 4HYARD, 3X, 8HYEAR 19, 12, / T56, 4H----, 3X,	RATE 370
1	2(4H----), 2H--)	RATE 380
60	DO 220 I = 1,INOYARD	RATE 390
	GO TO (70,80,90,200,210), NYEAR	RATE 400
70	WRITE(6,107) IYARD(I), (RATE(I,J),J=1,NYEAR)	RATE 410
107	FORMAT(1H , 54X, A5, 3X, F9.2, /)	RATE 420
	GO TO 220	RATE 430
80	WRITE(6,108) IYARD(I), (RATE(I,J),J=1,NYEAR)	RATE 440
108	FORMAT(1H , 48X, A5, 2(3X,F9.2) /)	RATE 450
	GO TO 220	RATE 460
90	WRITE(6,109) IYARD(I), (RATE(I,J),J=1,NYEAR)	RATE 470
109	FORMAT(1H , 42X, A5, 3(3X,F9.2) /)	RATE 480
	GO TO 220	RATE 490
200	WRITE(6,110) IYARD(I), (RATE(I,J),J=1,NYEAR)	RATE 500
110	FORMAT(1H , 36X, A5, 4(3X,F9.2) /)	RATE 510
	GO TO 220	RATE 520
210	WRITE(6,111) IYARD(I), (RATE(I,J),J=1,NYEAR)	RATE 530
111	FORMAT(1H , 30X, A5, 5(3X,F9.2) /)	RATE 540
220	CONTINUE	RATE 550
	WRITE(6,112)	RATE 560
112	FORMAT(///, 22X, 90H.....)	RATE 570
1)	RATE 580
	WRITE(6,113)	RATE 590

113	FORMAT(////////, 37X, 59H*****	RATE 600
	1***** , /)	RATE 610
	WRITE(6,114) IMAT	RATE 620
114	FORMAT(1H , 44X, 18H MATERIAL FACTOR = , I3,	RATE 630
	1 23H PERCENT OF LABOR COSTS, /)	RATE 640
	WRITE(6,115)	RATE 650
115	FORMAT(/, 37X, 59H*****	RATE 660
	1***** ,)	RATE 670
	RETURN	RATE 680
	END	RATE 690

C	SUBROUTINE REPORT (NYEAR, IOPT, INAT, NYDS, IEXTRA, IGROUP)	REPT 10
C		REPT 20
C	SUBROUTINE TO WRITE REPORTS FOR A SHIP GROUPING BY YEAR	REPT 30
C		REPT 40
C	REAL*8 IDBL, IYARD IYARD, IYSEL	**** 50
C		REPT 60
C	COMMON/IDATA/ SHIP(6,2), IHULL(6,2)	REPT 70
C	COMMON /WORK/ ARRAY1(13,5,18), ARRAY2(13,5,18), ARRAYD(13,5,18),	REPT 80
C	1 ARRAYN(13,5,18), UARRAY(13,5,2), UYARD(13,5,2)	REPT 90
C	COMMON /MISC/ IYEAR(5), RATE(15,5)	REPT 100
C	COMMON /INPUT/ IYSEL(13), IYARD(15)	REPT 110
C	COMMON /OTHER/ IFLAG(15,5), IFLAGG(15,5), IUNOS(15,5), IUNOSS(15,5)	REPT 120
C	DIMENSION DAY(9), DOL(9), IDOL(9), IDAY(9), IOPT(14)	REPT 130
C	DO 300 J = 1, NYEAR	REPT 140
C		REPT 150
C	TEST IF THERE IS ANY DATA AT ALL IN THIS GROUP	REPT 160
C	IF(IFLAG(13,J).NE.0) GO TO 1	REPT 170
C	CALL IERROR(5,11,IDUM1,IGROUP, IDBL)	REPT 180
C	IF(IUNOS(13,J).NE.0) GO TO 1	REPT 182
C	CALL IERROR(5,11,IDUM1,IGROUP, IDBL)	REPT 184
C	RETURN	REPT 190
C	1 JYEAR = IYEAR(J)	REPT 200
C	NUMBER = 0	REPT 210
C		REPT 220
C	CHECK ALL OPTIONS	REPT 230
C	DO 250 I = 1,13	REPT 240
C	INITIALIZE VALUES	REPT 250
C	JSUMDY = 0	REPT 260
C	JSUMDL = 0	REPT 270
C	USUM = 0.0	REPT 280
C	UDDL = 0.0	REPT 290
C	IF(I.EQ.13) GO TO 2	REPT 300
C	IF(IOPT(I).EQ.0) GO TO 250	REPT 310
C		REPT 320
C	CHECK FOR ANY DATA IN REQUESTED OPTIONS	REPT 330
C	IF(IFLAG(I,J).EQ.0 .AND. IUNOS(I,J).EQ.0) GO TO 245	REPT 340
C	II = IOPT(I) * 1	REPT 350
C	GO TO 5	REPT 360
C	2 II = 1	REPT 370
C		REPT 380
C	DETERMINE UNOS WORK	REPT 390
C	5 IF(IUNOS(II,J).EQ.0) GO TO 6	REPT 400
C	USUM = UARRAY(II,J,1)	REPT 410
C	UDDL = UARRAY(II,J,2)	REPT 420
C	6 DO 10 K = 1,9	REPT 430
C	DAY(K) = ARRAY1(II,J,K)	REPT 440
C	DOL(K) = ARRAY2(II,J,K)	REPT 450
C	JSUMDY = JSUMDY + IFIX(DAY(K))	REPT 460
C	JSUMDL = JSUMDL + IFIX(DOL(K))	REPT 470
C	10 CONTINUE	REPT 480
C		REPT 490
C	ADD UNOS DATA TO TOTALS	REPT 500
C	JSUMDY = JSUMDY + IFIX(USUM)	REPT 510
C	JSUMDL = JSUMDL + IFIX(UDDL)	REPT 520
C		REPT 530
C	PUT HANDAY DATA IN INTEGER FORM AND COST DATA IN THOUSANDS	REPT 540
C	OF DOLLARS	REPT 540
C	DO 12 KK = 1,9	REPT 550
C	IDAY(KK) = IFIX(DAY(KK))	REPT 560

	IDOL(KK) = IFIX(DOL(KK) / 1000.)	REPT 570
12	CONTINUE	REPT 580
	ISUMDL = JSUMDL/1000	REPT 590
	IUDOL = IFIX(IUDOL/1000.)	REPT 600
	IUSUM = IFIX(IUSUM)	REPT 610
C		REPT 620
C	CALCULATE MATERIAL COSTS	REPT 630
	MAT = ISUMDL * IMAT/100	REPT 640
	IF(MOD(NUMBER,4) .NE.0) GO TO 15	REPT 650
	CALL TITLE(JYEAR, IEXTRA, IGROUP)	REPT 660
15	NUMBER = NUMBER + 1	REPT 670
	GO TO (20,30,40,50,60,70,80,90,200,210,220,230,240), 11	REPT 680
C		REPT 690
20	WRITE(6,100)	REPT 700
100	FORMAT(1H, 11HGROUP TOTAL, / 1X, 2(4H----), 3H--)	REPT 710
25	IF(IEXTRA.NE.0) GO TO 28	REPT 720
	WRITE(6,101) (IDAY(K), K=1,9), JSUMDY	REPT 730
101	FORMAT(1H, 20HDIRECT LABOR MANDAYS, 2X, 10(19,1X) /)	REPT 740
	WRITE(6,102) (IDOL(K),K=1,9), ISUMDL	REPT 750
102	FORMAT(1H, 18HDIRECT LABOR COSTS, 4X, 9(19,1X), 19, / ,	REPT 760
1	1X, 22H(THOUSANDS OF DOLLARS), /)	REPT 770
	WRITE(6,103) MAT	REPT 780
103	FORMAT(1H, 14HMATERIAL COSTS, 97X, 110, / ,	REPT 790
1	1X, 22H(THOUSANDS OF DOLLARS), //)	REPT 800
	GO TO 250	REPT 810
C		REPT 820
C	WRITE STATEMENTS FOR EXTRA UNOS VALUES	REPT 830
28	WRITE(6,117) (IDAY(K),K=1,9), IUSUM, JSUMDY	REPT 840
117	FORMAT(1H, 20HDIRECT LABOR MANDAYS, 1X, 11(19,1X), /)	REPT 850
	WRITE(6,118) (IDOL(K),K=1,9), IUDOL, ISUMDL	REPT 860
118	FORMAT(1H, 18HDIRECT LABOR COSTS, 3X, 10(19,1X), 19, / ,	REPT 870
1	1X, 22H(THOUSANDS OF DOLLARS), /)	REPT 880
	WRITE(6,119) MAT	REPT 890
119	FORMAT(1H, 14HMATERIAL COSTS, 106X, 110, / ,	REPT 900
1	1X, 22H(THOUSANDS OF DOLLARS), //)	REPT 910
	GO TO 250	REPT 920
C		REPT 930
30	WRITE(6,104)	REPT 940
104	FORMAT(1H, 14HWORK IN NAVY YARDS, / 1X, 4(4H----), 2H--)	REPT 950
	GO TO 25	REPT 960
40	WRITE(6,105)	REPT 970
105	FORMAT(1H, 21HEAST COAST NAVY YARDS, / 1X, 5(4H----), 1H-)	REPT 980
	GO TO 25	REPT 985
50	WRITE(6,106)	REPT 990
106	FORMAT(1H, 21HWEST COAST NAVY YARDS, / , 1X, 5(4H----), 1H-)	REPT1000
	GO TO 25	REPT1010
60	WRITE(6,107)	REPT1020
107	FORMAT(1H, 21HWORK IN PRIVATE YARDS, / , 1X, 5(4H----), 1H-)	REPT1030
	GO TO 25	REPT1040
70	WRITE(6,108)	REPT1050
108	FORMAT(1H, 18HEAST COAST PRIVATE, / , 1X, 4(4H----), 2H--)	REPT1060
	GO TO 25	REPT1070
80	WRITE(6,109)	REPT1080
109	FORMAT(1H, 18HWEST COAST PRIVATE, / , 1X, 4(4H----), 2H--)	REPT1090
	GO TO 25	REPT1100
90	WRITE(6,110)	REPT1110
110	FORMAT(1H, 15HCONVERSION WORK, / , 1X, 3(4H----), 3H--)	REPT1120
	GO TO 25	REPT1130
200	WRITE(6,111)	REPT1140
111	FORMAT(1H, 16HACTIVE SHIP WORK, / 1X, 4(4H----))	REPT1150

GO TO 25	REPT1160
210 WRITE(6,112)	REPT1170
112 FORMAT(1H , 17HRESERVE SHIP WORK, / , 1X, 4(4H----), 1H-)	REPT1180
GO TO 25	REPT1190
220 WRITE(6,113)	REPT1200
113 FORMAT(1H , 8HMAP WORK/, 1X, 2(4H----))	REPT1210
GO TO 25	REPT1220
230 WRITE(6,114)	REPT1230
114 FORMAT(1H , 11HREPAIR WORK, / , 1X, 2(4H----), 3H---)	REPT1240
GO TO 25	REPT1250
240 WRITE(6,115)	REPT1260
115 FORMAT(1H , 15HALTERATION WORK, / , 1X, 3(4H----), 3H---)	REPT1270
GO TO 25	REPT1280
245 IIOPT = IOPT(I)	REPT1290
C	REPT1300
C ERROR PATH FOR VARIOUS OPTIONS	REPT1310
CALL IERROR(5,IIOPT,JYEAR,IGROUP,IOBL)	REPT1320
250 CONTINUE	REPT1330
C	REPT1340
C SECTION FOR YARD SUMMARIES	REPT1350
IF(NYDS.EQ.0) GO TO 300	REPT1355
DO 275 I = 1, NYDS	REPT1360
C INITIALIZE VALUES	REPT1370
JSUMDY = 0	REPT1380
JSUMDL = 0	REPT1390
USUM = 0.0	REPT1400
UDOL = 0.0	REPT1410
C	REPT1420
C CHECK FOR ANY DATA IN REQUESTED OPTIONS	REPT1430
IF(IFLAGG(I,J).EQ.0 .AND. IUNOSS(I,J).EQ.0) GO TO 270	REPT1440
IF(IUNOSS(I,J).EQ.0) GO TO 255	REPT1450
C	REPT1460
C DETERMINE UNOS WORK	REPT1470
USUM = UYARD(I,J,1)	REPT1480
UDOL = UYARD(I,J,2)	REPT1490
255 DO 260 K = 1,9	REPT1500
DAY(K) = ARRAYD(I,J,K)	REPT1510
DOL(K) = ARRAYM(I,J,K)	REPT1520
JSUMDY = JSUMDY + IFIX(DAY(K))	REPT1530
JSUMDL = JSUMDL + IFIX(DOL(K))	REPT1540
260 CONTINUE	REPT1550
C	REPT1560
C ADD UNOS DATA TO TOTALS	REPT1570
JSUMDY = JSUMDY + IFIX(USUM)	REPT1580
JSUMDL = JSUMDL + IFIX(UDOL)	REPT1590
C	REPT1600
C PUT HANDAY DATA IN INTEGER FORM AND COST DATA IN THOUSANDS OF \$	REPT1610
DO 262 KK = 1,9	REPT1620
IDOL(KK) = IFIX(DOL(KK) / 1000.)	REPT1630
IDAY(KK) = IFIX(DAY(KK))	REPT1640
262 CONTINUE	REPT1650
ISUMDL = JSUMDL/1000	REPT1660
IUDOL = IFIX(UDOL/1000.)	REPT1670
IUSUM = IFIX(USUM)	REPT1680
C	REPT1690
C CALCULATE MATERIAL COSTS	REPT1700
MAT = ISUMDL * IMAT/100	REPT1710
IF(MOD(NUMBER,4) .NE.0) GO TO 265	REPT1720
CALL TITLE(JYEAR,TEXTTRA, IGROUP)	REPT1730
265 NUMBER = NUMBER + 1	REPT1740

WRITE(6,116) IYDSEL(I)	REPT1750
116 FORMAT(1H , 5HYARD1, 1X, A5, / 1X, 4H----, 1H-)	REPT1760
IF(IEXTRA.NE.0) GO TO 267	REPT1770
WRITE(6,101) (IDAY(K), K=1,9), JSUMDY	REPT1780
WRITE(6,102) (IDOL(K), K=1,9), ISUMDL	REPT1790
WRITE(6,103) MAT	REPT1800
GO TO 275	REPT1810
C	REPT1820
C WRITE STATEMENTS FOR EXTRA UNOS VALUES	REPT1830
267 WRITE(6,117) (IDAY(K), K=1,9), IUSUM, JSUMDY	REPT1840
WRITE(6,118) (IDOL(K), K=1,9), IUOOL, ISUMDL	REPT1850
WRITE(6,119) MAT	REPT1860
GO TO 275	REPT1870
C	REPT1880
C ERROR PATH FOR YARDS	REPT1890
270 IYARD = IYDSEL(I)	REPT1900
CALL IERROR(6, IDUMMY, IDUM1, IGROUP, IYARD)	REPT1910
275 CONTINUE	REPT1920
300 CONTINUE	REPT1930
RETURN	REPT1940
END	REPT1950
SUBROUTINE SKPGRP(IONCE)	SKPG 10
C	SKPG 20
C SUBROUTINE TO SKIP TO NEXT SHIP GROUP	SKPG 30
REAL*8 ISHULL, IYD, IDOL	**** 40
C	SKPG 50
C**10 READ(12) ISHULL, ITYPNK, IYD, IGROUP, IFYR	**** 60
10 READ(12,END=20) ISHULL, ITYPNK, IYD, IGROUP, IFYR	**** 70
C*****IF(EOF(12).NE.0) GO TO 20	**** 80
IF(IFYR.GT.0) GO TO 10	SKPG 90
BACKSPACE 12	SKPG 100
RETURN	SKPG 110
20 CALL IERROR(12, IDUMMY, IDUM1, IDUM2, IDOL)	SKPG 120
C	SKPG 130
C REWIND FILE ONCE IF UNABLE TO FIND REQUESTED GROUP NUMBER	SKPG 140
IF(IONCE.EQ.1) STOP	SKPG 150
REWIND 12	SKPG 160
IONCE = 1	SKPG 170
RETURN	SKPG 180
END	SKPG 190

C	SUBROUTINE SUM(JOPT,VALUES,IYD,IFYR,YDRATE,III,ISAVE)	SUMM 10
C		SUMM 20
C	SUBROUTINE TO SUM VALUES FOR VARIOUS OPTIONS	SUMM 30
C		SUMM 40
C	REAL*8 IYARD, IYDSEL, IYD	**** 50
C		SUMM 60
C	COMMON /WORK/ ARRAY1(13,5,10), ARRAY2(13,5,10), ARRAYD(13,5,10),	SUMM 70
C	1 ARRAYM(13,5,10), UARRAY(13,5,2), UYARD(13,5,2)	SUMM 80
C	COMMON/IDATA/ SHIP(6,2), IMULL(6,2)	SUMM 90
C	COMMON /MISC/ IYEAR(5), RATE(15,5)	SUMM 100
C	COMMON /INPUT/ IYDSEL(13), IYARD(15)	SUMM 110
C	DIMENSION VALUES(10)	SUMM 120
C		SUMM 130
C	II = JOPT	SUMM 140
C		SUMM 150
C	INITIALIZE VALUES	SUMM 160
C	USUM = 0.0	SUMM 170
C	UDOL = 0.0	SUMM 180
C		SUMM 190
C	SET FLAG FOR UNOS	SUMM 200
C	IF(III.NE.0) ISAVE = 1	SUMM 210
C	DO 10 JJ = 1,5	SUMM 220
C	J = JJ	SUMM 230
C	IF(IFYR.EQ.IYEAR(JJ)) GO TO 15	SUMM 240
C	10 CONTINUE	SUMM 250
C	15 IF(JOPT.LE.11) GO TO 20	SUMM 260
C	IF(JOPT.EQ.12) GO TO 30	SUMM 270
C	IF(JOPT.EQ.13) GO TO 40	SUMM 280
C	IF(JOPT.EQ.14) GO TO 50	SUMM 290
C		SUMM 300
C	SUM VALUES FOR OPTIONS 1 THRU 10 AND FOR TOTAL	SUMM 310
C		SUMM 320
C	CHECK FOR UNOS WORK	SUMM 330
C	20 IF(III.EQ.0) GO TO 22	SUMM 340
C	DO 21 K = 1,9	SUMM 350
C	USUM = USUM + (VALUES(K) + VALUES(9+K))	SUMM 360
C	21 CONTINUE	SUMM 370
C	UDOL = USUM * YDRATE	SUMM 380
C	UARRAY(II,J,1) = UARRAY(II,J,1) + USUM	SUMM 390
C	UARRAY(II,J,2) = UARRAY(II,J,2) + UDOL	SUMM 400
C	WRITE(6,996) II,J,UARRAY(II,J,1), USUM	SUMM 410
C	996 FORMAT(1H , 6HOPT = , I3, 2X, 7HYEAR = , I2, 2X, 9HUARRAY = ,	SUMM 420
C	1 F8.1, 2X, 7HUSUM = , F9.1)	SUMM 430
C	RETURN	SUMM 440
C		SUMM 450
C	SECTION FOR SCHEDULED WORK	SUMM 460
C	22 DO 25 K = 1,9	SUMM 470
C	ARRAY1(II,J,K) = ARRAY1(II,J,K) + (VALUES(K) + VALUES(9+K))	SUMM 480
C	ARRAY2(II,J,K) = ARRAY2(II,J,K) + (VALUES(K) + VALUES(9+K))	SUMM 490
C	1 * YDRATE	SUMM 500
C	25 CONTINUE	SUMM 510
C	WRITE(6,999) II,J, ARRAY1(II,J,1)	SUMM 520
C	999 FORMAT(1H , 6HOPT = , I3, 2X, 7HYEAR = , I2, 2X, 8HARRAY = , F8.1)	SUMM 530
C	998 FORMAT(1H , 6HOPT = , I3, 2X, 7HYEAR = , I2, 2X, 9HARRAYD = , F8.1)	SUMM 540
C	WRITE(6,997) VALUES(1)	SUMM 550
C	997 FORMAT(1H , 9HVALUES = , F9.1)	SUMM 560
C	RETURN	SUMM 570
C		SUMM 580
C	SUM VALUES FOR REPAIRS, ONLY	SUMM 590

30 IF(III.EQ.0) GO TO 32	SUMM 600
DO 31 K = 1,9	SUMM 610
USUM = USUM + VALUES(K)	SUMM 620
31 CONTINUE	SUMM 630
UDOL = USUM * YDRATE	SUMM 640
UARRAY(II,J,1) = UARRAY(II,J,1) + USUM	SUMM 650
UARRAY(II,J,2) = UARRAY(II,J,2) + UDOL	SUMM 660
RETURN	SUMM 670
C	SUMM 680
C SECTION FOR SCHEDULED WORK	SUMM 690
32 DO 35 K = 1,9	SUMM 700
ARRAY1(II,J,K) = ARRAY1(II,J,K) + VALUES(K)	SUMM 710
ARRAY2(II,J,K) = ARRAY2(II,J,K) + VALUES(K) * YDRATE	SUMM 720
35 CONTINUE	SUMM 730
RETURN	SUMM 740
C	SUMM 750
C SUM VALUES FOR ALTS, ONLY	SUMM 760
40 IF(III.EQ.0) GO TO 42	SUMM 770
DO 41 K = 10,18	SUMM 780
USUM = USUM + VALUES(K)	SUMM 790
41 CONTINUE	SUMM 800
UDOL = USUM * YDRATE	SUMM 810
UARRAY(II,J,1) = UARRAY(II,J,1) + USUM	SUMM 820
UARRAY(II,J,2) = UARRAY(II,J,2) + UDOL	SUMM 830
RETURN	SUMM 840
C	SUMM 850
C SECTION FOR SCHEDULED WORK	SUMM 860
42 DO 45 K = 10,18	SUMM 870
ARRAY1(II,J,K-9) = ARRAY1(II,J,K-9) + VALUES(K)	SUMM 880
ARRAY2(II,J,K-9) = ARRAY2(II,J,K-9) + VALUES(K) * YDRATE	SUMM 890
45 CONTINUE	SUMM 900
RETURN	SUMM 910
C	SUMM 920
C FOR SUMMATIONS BY YARD	SUMM 930
50 DO 55 L = 1,13	SUMM 940
I = L	SUMM 950
IF(IYD.EQ.IYDSEL(L)) GO TO 60	SUMM 960
55 CONTINUE	SUMM 970
60 IF(III.EQ.0) GO TO 62	SUMM 980
DO 61 K = 1,9	SUMM 990
USUM = USUM + (VALUES(K) + VALUES(K+9))	SUMM1000
61 CONTINUE	SUMM1010
UDOL = USUM * YDRATE	SUMM1020
UYARD(II,J,1) = UYARD(II,J,1) + USUM	SUMM1030
UYARD(II,J,2) = UYARD(II,J,2) + UDOL	SUMM1040
C WRITE(6,995) II,J,UYARD(II,J,1), USUM	SUMM1050
995 FORMAT(1H , 6HPT = , I3, 2X, 7HYEAR = , I2, 2X, 8HUYARD = ,	SUMM1060
1 F8.1, 2X, 7HUSUM = , F9.1)	SUMM1070
RETURN	SUMM1080
C	SUMM1090
C SECTION FOR SCHEDULED WORK	SUMM1100
62 DO 65 K = 1,9	SUMM1110
ARRAYD(II,J,K) = ARRAYD(II,J,K) + (VALUES(K) + VALUES(9+K))	SUMM1120
ARRAYM(II,J,K) = ARRAYM(II,J,K) + (VALUES(K) + VALUES(9+K))	SUMM1130
1 * YDRATE	SUMM1140
65 CONTINUE	SUMM1150
C WRITE(6,998) II,J,ARRAYD(II,J,1)	SUMM1160
C WRITE(6,997) VALUES(1)	SUMM1170
RETURN	SUMM1180
END	SUMM1190

	SUBROUTINE TITLE(IFYR, IEXTRA, IGROUP)	TITL 10
C		TITL 20
C	SUBROUTINE TO WRITE TITLE	TITL 30
C		TITL 40
	DIMENSION ISWBS(9)	TITL 50
	DATA ISWBS/ 100, 200, 300, 400, 500, 600, 700, 800, 900/	TITL 60
C		TITL 70
	CALL HEADER(2)	TITL 80
	WRITE(6,100) IGROUP, IFYR	TITL 90
100	FORMAT(1H , 41X, 49HDEPOT MAINTENANCE PLANNING AND PROGRAMMING SYS	TITL 100
	1TEM, / 46X, 39HMISSION ESSENTIAL WORKLOAD REQUIREMENTS./	TITL 110
	2 62X, 7HBY SWBS, //,	TITL 120
	3 54X, 6HGROUP , 13,3X,9HFISCAL 19, 12 /	TITL 130
	4 T55, 2(4H----), 1H-, 3X, 2(4H----), 3H---, //)	TITL 140
C		TITL 150
C	USE DIFFERENT HEADING IF HAVE ANY UNOS DATA FOR A GIVEN SHIP	TITL 160
C	GROUPING	TITL 170
	IF(IEXTRA.EQ.1) GO TO 10	TITL 180
	WRITE(6,101) (ISWBS(I), I=1,9)	TITL 190
101	FORMAT(1H , 22X, 9(1X,5HISWBS , 13, 1X), 2X, 5HTOTAL, /, T24,	TITL 200
	1 10(1X, 2(4H----), 1X))	TITL 210
	RETURN	TITL 220
	10 WRITE(6,102) (ISWBS(I),I=1,9)	TITL 230
102	FORMAT(1H , 21X, 9(1X,5HISWBS , 13,1X), 2X,5HOTHER,5X,5HTOTAL, /,	TITL 240
	1 T23, 10(1X,2(4H----),1X), 1X, 2(4H----))	TITL 250
	RETURN	TITL 260
	END	TITL 270

6.3.6 GLOSSARY

COMMON VARIABLES

Common Block /IDATA/

IHULL(6,2) Array of hull numbers; the first subscript refers to the hull number and the second to (1) lower bound of a ship group and (2) upper bound of that group.

SHIP(6,2) Array of ship names; the first subscript refers to the ship type and the second to (1) lower bound of a ship group and (2) upper bound of that group.

Common Block /IDENT/

COMENT(5) Array of report identification information.

DATE(3) Array containing the date of the run.

Common Block /MISC/

IYEAR(5) Array of years to be reported on, determined by input.

RATE(15,5) Array of manday rates; the first subscript refers to the yard and the second to the year.

Common Block /INPUT/

IYARD(15) Array of yards corresponding to the manday rates specified by the array RATE.

IYDSEL(13) Array of yards to be processed, determined by input.

Common Block /OTHER/

IFLAG(15,5) Array of flags; the first subscript refers to the option and the second to the year.

IFLAGG(15,5) Array of flags; the first subscript refers to the yard and the second to the year.

IUNOS(15,5) Array of flags; the first subscript refers to the option with respect to "other" shipwork (UNOW) and the second to the year.

Common Block /OTHER/ (Continued)

IUNOSS(15,5) Array of flags; the first subscript refers to the yard with respect to UNOW work and the second to the year.

Common Block /WORK/

ARRAY1(13,5,18) Array of direct labor mandays; the first subscript refers to the option, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

ARRAY2(13,5,18) Array of material dollar values; the first subscript refers to the option, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

ARRAYD(13,5,18) Array of direct labor mandays; the first subscript refers to the yard, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

ARRAYM(13,5,18) Array of material dollar values; the first subscript refers to the yard, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

UARRAY(13,5,2) Array containing (1) direct labor mandays for UNOW (if the third subscript is "1"), and (2) UNOW material dollars (if the third subscript is "2"). The first subscript refers to the option and the second to the year.

UYARD(13,5,2) Array containing (1) direct labor mandays for UNOW (if the third subscript is "1"), and (2) UNOW material dollars (if the third subscript is "2"). The first subscript refers to the yard and the second to the year.

LOCAL VARIABLES

Main Program

ACT	Variable containing the characters "ACT".
ALT	Variable containing the characters "ALT".
COAST	Coast (east or west).
CON	Variable containing the characters "CON".
CONV	Variable containing the character "C".
DUMI	Dummy variable in header record of SWBS File.
EAST	Variable containing the character "E".
FILLER(3)	Dummy array used in reading the header record of the SWBS File.
I	DO-loop index.
IBLANK	8-character blank space.
ICONT	Continuation indicator.
IDBL	Double precision dummy argument in subroutine IERROR.
IDUMMY	Dummy argument in subroutine IERROR.
IDUM1	Dummy variable in header record of SWBS File.
IDUM2	Additional dummy variable in header record of SWBS File.
IDUM3	Dummy argument in subroutine IERROR.
IDUM4	Additional dummy argument in subroutine IERROR.
IEND	Availability end date (mo/dy/yr).
IEXTRA	Argument in subroutine REPORT.
IFYR	Fiscal year for this availability.
IGROUP	Group number read from SWBS File.
ICRP	Group number to be reported on.
II	Variable used as the option number in a "computed go to". Also a counter used to determine numbers of yards and number of years to be processed.
III	A flag set to "1" when there is UNOW work, otherwise set to "0".
IMAT	Percent of direct labor costs for material.
IONCE	Argument in subroutine SKPGRP.
IOPT(14)	Array of options for a given ship group.
IPERD	Period (this record).

Main Program (Continued)

ISHULL	Ship type and hull number - read as a single variable from the SWBS File.
ISPEC	Specialization category.
ISTRT	Availability start date (mo/dy/yr).
ITYPWK	Type of work.
IUNOW	Variable containing the characters "OW".
IYD	Yard name read from SWBS File.
J	DO-loop index.
JJ	Subscript designating a given year in the IFLAG, IFLAGG, IUNOS, and IUNOSS arrays.
K	DO-loop index.
L	DO-loop index.
LAST	Variable containing the letters "LAST" to test for termination of Manday Rate Deck.
MATALT	Fraction of total other direct repair work, read from SWBS (by Group) File.
MATREP	Fraction of total other direct alteration work, read from SWBS (by Groups) File.
NOYARD	Number of yards for which there are manday rates.
NYDS	Number of yards to be processed for a given group.
NYEAR	Number of years to be reported on.
OWN	Yard ownership indicator (Navy or private).
PRI	Variable containing the character "P".
PRIV	Variable containing the characters "PRI".
REP	Variable containing the characters "REP".
RES	Variable containing the characters "RES".
VALUES(18)	Array of nine repair and nine alteration mandays read from the SWBS File.
WEST	Variable containing the character "W".
YDRATE	Manday rate for a given yard and year, returned as an argument in subroutine DOLLAR.
ZACT	Variable used to test for "ACT", active work.
ZALT	Variable used to test for "ALT", alterations.
ZCON	Variable used to test for "CON" - type work is conversion.
ZMAP	Variable containing the characters "MAP".

Main Program (Continued)

ZN	Variable containing the character "N".
ZNAVE	Variable used to test for "NE" - sector is Navy-east.
ZNAW	Variable used to test for "Nw" - sector is Navy-west.
ZNAVWK	Variable used to test for "NAV" - ownership is Navy.
ZNAVY	Variable containing the characters "NAV".
ZNE	Variable containing the characters "NE".
ZNRT	Variable containing the characters "NRT".
ZNW	Variable containing the characters "Nw".
ZPE	Variable containing the characters "PE".
ZPRI	Variable used to test for "PFI" - ownership is private.
ZPRIE	Variable used to test for "PF" - sector is private-east.
ZPRIW	Variable used to test for "PW" - sector is private-west.
ZPW	Variable containing the characters "PW".
ZRFP	Variable used to test for "REP" - repair work.
ZRES	Variable used to test for "RES" - type of work is NRT.
ZZMAP	Variable used to test for "MAP" - type of work is MAP.

Subroutine DOLLAR

I	DO-loop index.
IDBL	Double precision dummy argument in subroutine IERROR.
IDUMMY	Dummy argument in subroutine IERROR.
IDUM1	Dummy argument in subroutine IERROR.
IFYR	Fiscal year for this availability.
IYD	Yard name being processed.
J	DO-loop index.
OWN	Yard ownership indicator (Navy or private).
PRT	Variable containing the character "P".
YDRATE	Manday rate for a given yard and year.

Subroutine GRPID

BLANK	4-character blank space.
IGROUP	Group number being processed.
J	DO-loop index.
K	Index for I/O statement.

Subroutine HEADER

IPAGE	Variable used to increment page numbers in reports.
NOPG	A flag set to "2" when pages are to be numbered, otherwise set to "1".

Subroutine IERROR

IDBL	Double precision argument used to transfer yard names.
IDUMMY	Argument used to transfer the year or to designate which error message to write.
IDUM1	Argument used to transfer the year.
IDUM2	Argument used to transfer the group number.
N	Error number.

Subroutine RATEID

I	Index used for I/O statements.
IMAT	Percent of direct labor costs for material.
J	Index used for I/O statements.
NOYARD	Number of yards for which there are manday rates.
NYEAR	Number of years to be reported on.

Subroutine REPORT

DAY(9)	Array of manday values for a given yard and year.
DOL(9)	Array of material costs for a given yard and year.
I	DO-loop index.
IDAY(9)	Integer form of the array DAY.
IDBL	Double precision dummy argument in subroutine IERROR.

Subroutine REPORT (Continued)

IDOL(9)	Integer form of the array DOL.
IDUMMY	Dummy argument in subroutine IERROR.
IDUM1	Dummy argument in subroutine IERROR.
IEXTRA	Flag set to "1" for printing UNOW data, otherwise set to "0".
IGROUP	Variable used to transfer group number to subroutine IERPOP.
II	Subscript used to designate a given option.
IIOPT	Variable used to transfer the option to subroutine IERPOP.
IIVARD	Variable used to transfer a yard name to subroutine IERPOP.
INAT	Percent of direct labor costs for material.
IOPT(14)	Array of options for a given ship grouping.
ISUMDL	Direct labor costs in thousands of dollars.
IUDOL	Direct labor costs for UNOW in thousands of dollars.
IUSUM	Integer form of labor mandays for UNOW.
J	DO-loop index.
JSUMDL	Total labor cost for all SWBS.
JSUNDY	Total direct costs for material.
JYEAR	Year being reported on.
K	Index used for I/O statements.
KK	DO-loop index.
MAT	Direct labor costs for material in thousands of dollars.
NUMBER	Counter for number of reports per page.
NYDS	Number of yards being reported on.
NYEAR	Number of years being reported on.
UDOL	Direct labor costs for UNOW.
USUM	Labor mandays for UNOW.

Subroutine SKPGRP

IDBI	Double precision dummy argument in subroutine IERPOP.
IDUMMY	Dummy argument in subroutine IERPOP.

Subroutine SKPGRP (Continued)

IDUM1	Dummy argument in subroutine IERROR.
IDUM2	Dummy argument in subroutine IERROR.
IFYR	Fiscal year for this availability.
IGROUP	Group number read from SWBS File.
IONCE	Flag set to "1" when file has been rewound, otherwise set to "0".
ISHULL	Ship type and hull number - read as a single variable from the SWBS File.
ITYPWK	Type of work.
IYD	Yard name.

Subroutine SUM

I	Subscript used to designate a given yard in the UYARD, ARRAYD, and ARRAYM arrays.
IFYR	Fiscal year for this availability.
II	Subscript used to designate a given option in the UARRAY, ARRAY1, and ARRAY2 arrays.
III	Flag set to "1" when there is UNOW work, otherwise set to "0".
ISAVE	Flag set to "1" when UNOW work is summed, otherwise set to "0".
IYD	Yard name being processed.
J	Subscript used to designate a given year in the ARRAY1, ARRAY2, ARRAYD, ARRAYM, UARRAY, and UYARD arrays.
JJ	DO-loop index.
JOPT	Option number.
K	DO-loop index.
L	DO-loop index.
UDOL	Material dollar value for UNOW for a given option and a given year.
USUM	Labor manday value for UNOW for a given option and a given year.
VALUES(18)	Array of repair and alteration labor manday values for a given option and a given year.
YDRATE	Manday rate for a given yard and year.

Subroutine TITLE

I	Index used for I/O statements.
IEXTRA	Flag set to "1" for printing headings for UNOW data, otherwise set to "0".
IFYR	Fiscal year for this availability.
IGROUP	Group number.
ISWBS(9)	Array of SWBS numbers.

6.3.7 SAMPLE RUN

The card inputs (unit 5) for the sample run requested that reporting be projected for one year, 1982. The percent of direct labor costs for material was defined as 25. Manday rates were given for eight Navy shipyards and one rate was used for the private yards. All options (shipyard ownership, coastal location, and type of work) as well as yard summaries were requested for Group 1. Various combinations of options and yards were requested for the other groups. The SWBS (by Groups) Data File (unit 12) was used as input to REPWBS. A sample of this file may be found in Section 6.3.3.2 .

The sample output (unit 6) shows Direct Labor Mandays, Labor Costs, and Material Costs, projected for SWBS. Reports produced show breakdowns by sector and work categories. All options were requested for Group 1, a group of all CGN's. The following categories were reported on:

- Work in Navy Yards
- East Coast Navy Work
- West Coast Navy Work
- Conversion Work
- Active Ship Work

There was no private work for this group, so the following three reports were omitted:

- Work in Private Yards
- East Coast Private
- West Coast Private

Of the work categories requested, the following categories contained no data for the required group and year:

- Reserve Ship Work
- MAP Work

Any request for which there was no data produced an error message (unit 8) which gave the option, year, and group number. Three yard summaries were requested, but there was no data for Long Beach.

Group 2 was defined as an individual ship and a yard summary was the only request. Output included the projection of all work for the CGN 35 in Puget Sound Naval Shipyard for 1982. A group total is always produced and includes all work projected for that group of ships for the given year. In this case the group total and the Puget Sound summary were identical as any work projected for the CGN 35 is performed at Puget Sound Naval Shipyard.

The reports for Group 3, a group of carriers (CV 59 through CV 62), were presented to show a spread of work in both Navy and private shipyards and the totals for the individual yards.

Unit 5 - Card Inputs

08/02/77 DMPPS SAMPLE RUN 82 25

CHASN	159.80	159.80	159.80	159.80	159.80
NORVA	140.76	140.76	140.76	140.76	140.76
PHILA	148.76	148.76	148.76	148.76	148.76
PTSMH	153.04	153.04	153.04	153.04	153.04
LBECH	143.28	143.28	143.28	143.28	143.28
MARE	160.04	160.04	160.04	160.04	160.04
PEARL	161.56	161.56	161.56	161.56	161.56
PUGET	137.28	137.28	137.28	137.28	137.28
PRIV	150.00	150.00	150.00	150.00	150.00

LAST

1 NAV NE NW PRI PE PW CON ACT RES MAP
NORVA PUGET LBECH

2
NORVA PUGET LBECH D 11 NWPAC CHASN

3 NAV NW PRI PE PW CON ACT RES MAP
NORVA PUGET LBECH D 11 NWPAC CHASN D 06

-1

Unit 6 - SWBS Reports

DATE 08/02/77
DMPPS SAMPLE RUN

[illegible]

DATE 08/02/77
DMPPS SAMPLE RUN

LABOR RATES IN \$/MANDAY

YARD	YEAR	1982
CHASM		159.88
NORVA		148.76
PHILA		148.76
PTSMH		153.84
LBECH		143.28
MARE		160.84
PEARL		161.56
PUGET		137.28
PRIV		150.88

MATERIAL FACTOR = 25 PERCENT OF LABOR COSTS

DATE 08/12/77
OMPS SAMPLE RUN

.....
SHIP GROUP 1

CGN 1 - CGN 9999
.....

DEPOIT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SHBS

	GROUP 1 FISCAL 1982									
	SHBS 100	SHBS 200	SHBS 300	SHBS 400	SHBS 500	SHBS 600	SHBS 700	SHBS 800	SHBS 900	TOTAL
WORK IN NAVY YARDS										
DIRECT LABOR MANDAYS	15453	103413	30370	80507	84171	35500	12283	98454	109032	642071
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	2174	25451	4211	11111	11713	4939	1695	12511	15106	80991
MATERIAL COSTS (THOUSANDS OF DOLLARS)										22247
EAST COAST NAVY YARDS										
DIRECT LABOR MANDAYS	5461	54841	9502	12606	22119	11222	2609	26690	30926	175984
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	802	7801	1347	1779	3194	1685	367	3750	4354	25007
MATERIAL COSTS (THOUSANDS OF DOLLARS)										6251
WEST COAST NAVY YARDS										
DIRECT LABOR MANDAYS	9992	120572	20068	67901	62052	24206	9674	63756	78906	466007
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	1372	17650	2865	9332	8519	3334	1320	8753	10032	63905
MATERIAL COSTS (THOUSANDS OF DOLLARS)										15996
CONVERSION WORK										
DIRECT LABOR MANDAYS	3372	12430	1581	3015	14211	1030	1043	4744	12063	54217
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	463	1707	206	414	1951	141	253	651	1656	7442
MATERIAL COSTS (THOUSANDS OF DOLLARS)										1860

REPORT 63 DATE: 08/12/77
DMPS SAMPLE RUN

DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SMS

	GROUP 1 FISCAL 1982									
	SMS 100	SMS 200	SMS 300	SMS 400	SMS 500	SMS 600	SMS 700	SMS 800	SMS 900	TOTAL
ACTIVE SHIP WORK										

DIRECT LABOR HOURS	15453	183413	30370	88587	84171	35508	12283	90454	109832	642071
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	2174	25451	4211	11111	11713	4939	1695	12511	15186	88991
MATERIAL COSTS (THOUSANDS OF DOLLARS)										22247
GROUP TOTAL										

DIRECT LABOR HOURS	15453	183413	30370	88587	84171	35508	12283	90454	109832	642071
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	2174	25451	4211	11111	11713	4939	1695	12511	15186	88991
MATERIAL COSTS (THOUSANDS OF DOLLARS)										22247
YARD WORK										

DIRECT LABOR HOURS	3697	58573	9322	12393	17885	9903	2609	26638	30888	163648
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	528	7115	1270	1744	2518	1394	367	3758	4348	23335
MATERIAL COSTS (THOUSANDS OF DOLLARS)										5758
YARD PUSET										

DIRECT LABOR HOURS	9992	128572	20358	57381	62952	24286	9674	63756	78988	466887
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	1372	17650	2855	9122	9519	3334	1328	8753	10822	61985
MATERIAL COSTS (THOUSANDS OF DOLLARS)										15396

DATE 08/02/77
DMPPS SAMPLE RUN

.....

SWIP GROUP 2

CCN 35 - CCN 35

.....

REPORT 63 DATED 08/02/77
 SMPBS SAMPLE RUN

PAGE 1

DEPT MAINTENANCE PLANNING AND PROGRAMING SYSTEM
 MISSION ESSENTIAL WORKLOAD REQUIREMENTS
 BY SMBS

GROUP 2 FISCAL 1982

	SMBS 100	SMBS 200	SMBS 300	SMBS 400	SMBS 500	SMBS 600	SMBS 700	SMBS 800	SMBS 900	TOTAL
GROUP TOTAL										

DIRECT LABOR HOURS	4383	87334	15921	46576	35739	15900	5615	46108	53343	311889
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	602	11985	2186	6394	4906	2320	771	6330	7323	42817
MATERIAL COSTS (THOUSANDS OF DOLLARS)										10704
VAPOR PUSET										

DIRECT LABOR HOURS	4383	87334	15921	46576	35739	15900	5615	46108	53343	311889
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	602	11985	2186	6394	4906	2320	771	6330	7323	42817
MATERIAL COSTS (THOUSANDS OF DOLLARS)										10704

DATE 08/02/77
DMPPS SAMPLE RUN

.....
SHIP GROUP 3

CV 59 - CV 62
.....

DEPT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SWBS

GROUP 3 FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
WORK IN NAVY YARDS										
DIRECT LABOR HOURS	1768	13824	3377	6339	25396	5138	3225	0	6843	55356
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	249	1946	475	931	3573	723	454	0	963	9284
MATERIAL COSTS (THOUSANDS OF DOLLARS)										2121
WORK IN PRIVATE YARDS										
DIRECT LABOR HOURS	4334	21121	5417	28614	58159	19470	36241	0	10755	184871
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	646	3453	813	4231	8719	2771	5436	0	1613	27732
MATERIAL COSTS (THOUSANDS OF DOLLARS)										6933
EAST COAST PRIVATE										
DIRECT LABOR HOURS	1753	9233	2049	8214	18288	9662	19235	0	3933	58359
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	263	1385	307	1232	2742	1449	2885	0	593	10253
MATERIAL COSTS (THOUSANDS OF DOLLARS)										2563
WEST COAST PRIVATE										
DIRECT LABOR HOURS	2551	13748	3368	28392	39779	8810	21306	0	6822	115512
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	383	2368	515	3059	5937	1321	3151	0	1023	17477
MATERIAL COSTS (THOUSANDS OF DOLLARS)										4369

PAGE 3

 REPORT: 63 DATE: 08/02/77
 DMPPS SAMPLE RUN

 DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
 MISSION ESSENTIAL WORKLOAD REQUIREMENTS
 BY SMBS

	GROUP 3 FISCAL 1982										
	SMBS 100	SMBS 200	SMBS 300	SMBS 400	SMBS 500	SMBS 600	SMBS 700	SMBS 800	SMBS 900	TOTAL	
YAPOT 0 96											

DIRECT LABOR HOURS	1753	9233	2049	8214	10280	9662	15235	0	3933	60359	
DIRECT LABOR COSTS	263	1385	307	1232	2742	1449	2285	0	590	10263	
(THOUSANDS OF DOLLARS)											
MATERIAL COSTS										2563	
(THOUSANDS OF DOLLARS)											

Unit 8 - Error Messages

```

* * * NO PRIVATE YARD WORK FOR 1982 FOR GROUP 1
* * * NO EAST COAST PRIVATE YARD WORK FOR 1982 FOR GROUP 1
* * * NO WEST COAST PRIVATE YARD WORK FOR 1982 FOR GROUP 1
* * * NO RESERVE SHIP WORK FOR 1982 FOR GROUP 1
* * * NO MAP WORK FOR 1982 FOR GROUP 1
* * * NO DATA FOR LBECN FOR GROUP 1
* * * NO DATA FOR NORVA FOR GROUP 2
* * * NO DATA FOR LBECN FOR GROUP 2
* * * NO DATA FOR D 11 FOR GROUP 2
* * * NO DATA FOR NWPAC FOR GROUP 2
* * * NO DATA FOR CHASN FOR GROUP 2
* * * NO WEST COAST NAVY YARD WORK FOR 1982 FOR GROUP 3
* * * NO CONVERSION WORK FOR 1982 FOR GROUP 3
* * * NO RESERVE SHIP WORK FOR 1982 FOR GROUP 3
* * * NO MAP WORK FOR 1982 FOR GROUP 3
* * * NO DATA FOR PUGET FOR GROUP 3
* * * NO DATA FOR LBECN FOR GROUP 3
* * * NO DATA FOR NWPAC FOR GROUP 3
* * * NO DATA FOR CHASN FOR GROUP 3
* * * END OF FILE ENCOUNTERED

```


6.4 PROGRAM REPMAT

6.4.1 DESCRIPTION

REPMAT is a report generator that produces summary reports of projected workloads for the various production shop and Ship Work Breakdown Structure (SWBS) categories. Each report contains a 10-by-20 matrix whose rows reflect the mandays projected for the SWBS categories and whose columns show the mandays in shops. The shops consist of the 19 production shop categories and the SWBS represents the nine single-digit SWBS categories. Shop 65 (Module Repair and Maintenance Facilities) has been deleted from the matrix for reporting purposes, since Charleston is the only shipyard that uses it. Historical data collected to date from Charleston Shipyard showed no work performed in that shop. In the future, if work is projected for shop 65, it will be combined with shop 68.

The 19 shop categories referred to in these reports are as follows:

<u>Shop Number</u>	<u>Shop Name</u>
06	Central Tool Shop
11	Shipfitter Shop
17	Sheetmetal Shop
23	Forge Shop
26	Welding Shop
31	Inside Machine Shop
36	Weapon System Shop
38	Outside Machine Shop
41	Boiler Shop
51	Electric Shop
56	Pipe and Copper Shop
64	Woodworking Shop
65	Module Repair and Maintenance Facilities
67	Electronics Shop
71	Paint Shop
72	Rigging Shop

81	Foundry Shop
94	Patternmaker Shop
99	Temporary Service Shop

Those areas, in which productive work is performed, that are not covered by these categories are referred to as "other direct."

The following nine SWBS categories are referred to in these reports:

1. Hull Structure
2. Propulsion Plant
3. Electrical Plant
4. Command and Surveillance (Shipboard Installations)
5. Auxiliary Systems
6. Outfit and Furnishings
7. Armament (Shipboard Installations)
8. Integration/Engineering (Shipboard Response)
9. Ship Assembly and Support Services

The program uses as input the SWBS-Shop Matrix File created by the program XPLODE (Volume 5 - Synthesizer Subsystem), a Group Definition Card Deck, and input cards defining report options. Reports can be generated for one of three options: (1) repair mandays, (2) alteration mandays, or (3) total mandays. Data are reported first by yard, then within a yard by ship groups, and within groups by year.

A Group Definition Card Deck defines the ship groupings which may be reported on. Ship groupings are defined by the user. A group may consist of a single ship, a ship class, functional ship groupings, or any combination of these. For each grouping there may be as many as six sets of lower and upper ship-type/hull-number range combinations. For example, surface combatants might be described by the following groupings: CG 4 through CGN 39, CV 19 through CVN 70, DD 714 through DDC 41, FF 1037 through FFG 7, and CVT 16 through CVT 16.

A group number is assigned to this grouping. This group number is compared to the one requested on the Yard Option card. If there is agreement, the ship type and hull number are examined. Those that fall within the grouping are reported on. The capability to select various

groupings means that reports can be made on broad categories, such as all surface ships, or to the detail of a single ship type and hull number. Provision has been made for 100 ship groupings.

A type A Yard Option card, the first of two to describe the various options, contains the shipyard name and the word "ALL" if the entire yard is to be reported on. For the type of work desired, the word "REP" for repairs, "ALT" for alterations, or "TOT" for total of repairs and alterations must be requested. This option must agree with the option used in creating that specific yard on the SWBS-Shop Matrix File. In addition, the years to be reported on are input on this card.

The second Yard Option card, a type B card, contains the shipyard name and the group numbers. A Yard Option Terminator card follows the final type B Yard Option card. A sample input set-up is shown in Figure 6.4-1.

Due to the tremendous amount of data involved, it is feasible to execute the program XPLODE creating a SWBS-Shop Matrix File for only two or three yards prior to generating reports. It is unlikely that one would store SWBS-Shop Matrix data for all shipyards, as each Depot Maintenance Assignment File (DMAF) availability produces 21 data records and requires a tremendous amount of machine storage space. When processing a yard, the program XPLODE reads a ship availability from the DMAF and produces one record for each of the 20 shops within the shipyard. This record shows the mandays that the shop will expend in the nine SWBS categories.

All yard information is read at the beginning of the program and is stored in arrays. The first record of the SWBS-Shop Matrix File is examined. If that yard is not required, the entire yard is skipped. The subroutine SUM is called to process the data for each record containing the year and the ship type requested. As a yard is completed, subroutine REPORT is called and data are extracted for reports by year and group number. Figure 6.4-2 shows a hierarchical diagram of REPMAT.

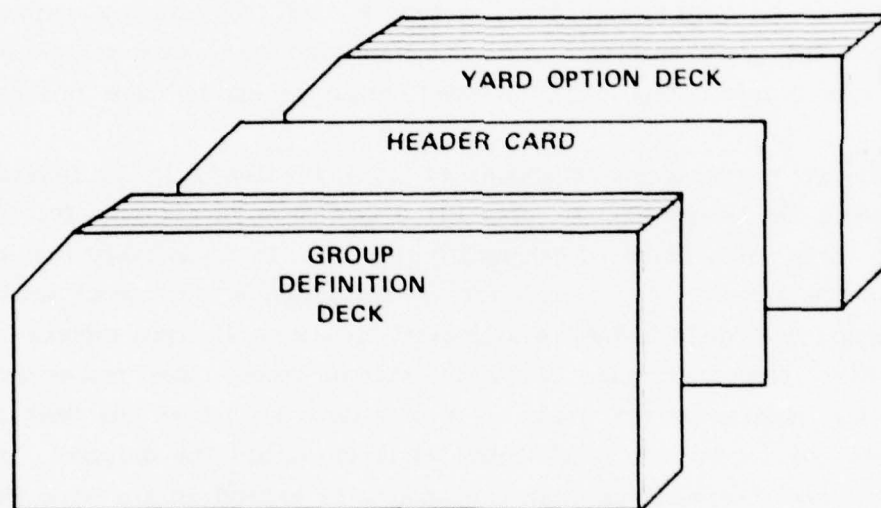


Figure 6.4-1 - Input Deck for REPMAT



Figure 6.4-2 - REPMAT Hierarchical Diagram

Main Program

The function of the main program is to identify and collect data for summary reports of projected workloads for the various production shops and Ship Work Breakdown Structure (SWBS) categories. Reports may be generated for repair mandays, for alteration mandays, or for total mandays. The program uses as input the SWBS-Shop Matrix File created by program XPLODE (Volume 5 - Synthesizer Subsystem), and input cards defining the report options. In addition, a Group Definition Data Base is created from the Group Definition Card Deck.

Subroutine BANNER

This subroutine writes a title page with the words "SWBS-SHOP REPORTS". The date and identifying information appear in the upper left corner.

Subroutine COMPAR

Subroutine COMPAR is called for each group of 20 shop records with the designated fiscal year. This subroutine compares the group numbers to be processed for a given yard with the array of group numbers in the Group Definition Data Base. If there is agreement, the ship type and hull number are examined to determine whether they fall within the lower and upper limits of any of the selected groupings. Matching group numbers are stored in the JGROUP array for use in subroutine REPORT. A flag is set when a match has been found and the data processing proceeds; otherwise an alternate return is made.

Subroutine HEADER

This subroutine writes report identification information in the upper left corner of each page and the page number in the upper right corner. SWBS-Shop reports are identified by the number "62" followed by the yard number and type of report. Yard numbers are assigned in subroutine YDNO and are carried in the argument list as "ID". The identifications for type of work are as follows:

01 for repairs
 02 for alterations
 03 for the total of repairs and alterations

Therefore, 62-01-02 would represent a report of total alteration mandays for Charleston.

Subroutine IERROR

The subroutine IERROR is called to indicate lack of data in any requested ship grouping. If the SWBS-Shop Matrix File was not created for an option that was requested (repairs, alterations, or total), an error message is written on unit 7.

Subroutine NOSHIP

The NOSHIP subroutine determines the number of ships in a given group and writes the ship type and hull numbers at the top of each report page.

Subroutine REPORT

Using the yard name, the option, and the arrays of data collected by other subroutines, subroutine REPORT extracts the data elements for the individual reports. Data are stored in separate arrays for each of the required years. Tests are made to ensure that there are data for each of the desired groups. If all work in an entire yard has been calculated, the total is stored as the first "group number" in the data array and must be extracted as such. The values for a given yard, group number, and year are transferred to the subroutine REPI for final output.

Subroutine REPI

Subroutine REPI uses the manday values for a given yard, group number, and year as extracted by subroutine REPORT and writes them in a report format.

Subroutine SEARCH

Subroutine SEARCH is used to determine whether a yard is to be processed. The yard name, read from the SWBS-Shop Matrix File, is compared with the array of yard names requested by input data. If there is no match, subroutine SKPYD is called to position the file at the beginning of the next yard and an alternate return is made.

Subroutine SKPSEC

This subroutine is used to skip all records on the SWBS-Shop Matrix File for a given sector. As each record is read, it is checked for a separator record which is a record of all "9's". After the separator record is encountered, the program proceeds to the next sector.

Subroutine SKPYD

Subroutine SKPYD is used to skip all records on the SWBS-Shop Matrix File relating to a given yard. As each record is read, the yard name is compared with the name of the yard to be skipped. When a new yard name appears, the file is backspaced and the program continues.

Subroutine SUM

This subroutine sums the man-day values for the nine SWBS categories and the 20 shops and stores them in arrays according to group number. There is an array for each of the five years. Subroutine SUM is called with one of three options: (1) to sum the values for given groups but not for an entire yard; (2) to sum the values for an entire yard but not for groups; (3) to sum the values for an entire yard as well as for given groups. In these data arrays the first subscript refers to the group number, the second subscript refers to the nine single-digit SWBS categories, and the third subscript refers to the 20 shops. If an entire yard is processed, the data are stored as the first "group number" in the array and later treated accordingly.

Subroutine TITLE

This subroutine is called by subroutine REPORT with an argument designating identifying notation to be written with the data. The options are: (1) TOTAL DIRECT REPAIR MANDAYS BY SWBS AND SHOPS, (2) TOTAL DIRECT ALTERATION MANDAYS BY SWBS AND SHOPS, (3) TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SWBS AND SHOPS.

Subroutine YEAR

This subroutine checks the fiscal year for a given data record with the array of years requested by input. If there is no agreement, transfer is made to that portion of the program that reads the next group of data records.

Subroutine YDNO

This subroutine assigns a number to each yard for report identification. For example: Charleston is 01, Long Beach is 02. The subroutine argument "ID" is transferred to subroutine HEADER with this identifying number to be used for report identification.

6.4.2 RUN SET-UP

The following set-up is used to run the REPMAT program on the IBM 360/370 computer:

```
//NVSREPM JOR (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOB LIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=REPMAT
//GO,FT05F001 DD *
```

REPMAT card inputs (unit 5)

```
//GO,FT06F001 DD SYSOUT=A (SHRS-SHOP REPORTS)
//GO,FT07F001 DD SYSOUT=A (ERROR MESSAGES)
//GO,FT11F001 DD DSN=NVS01.MATRIX.EXPLODE.DATA,DISP=SHR (INPUT FILE)
```


6.4.3 INPUTS

Card inputs are made using unit 5. The format for these cards is shown in Section 6.4.3.1.

Unit 5 - Card inputs which (1) define ship groups by setting lower and upper limits on ship type and hull number, (2) give identifying report information, (3) set the desired options and years required, (4) determine which yards and groups are to be reported on.

The following additional unit is used to input information from a disk file created by the program XPLODE:

Unit 8 - SWBS-Shop Matrix File.

The format for this file is given in Section 6.4.3.2.

6.4.3.1 Unit 5 - Card Inputs

Group Definition Cards. The Group Definition Deck describes the various ship groupings. Two cards, a type A and a type B, are required to define each group. There may be as many as 100 groups. A group definition terminator card follows the last type B group definition card.

Type A Group Definition Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IGFPNO(I)	Group Number	1-3	I3
GRPDEF(I,1,1)	Ship Set 1 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GRPDEF(I,1,2)	Ship Set 1 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDEF(I,2,1)	Ship Set 2 Ship-Type/Hull-Number (Lower Bound)	33-40	A8
GRPDEF(I,2,2)	Ship Set 2 (Upper Bound)	44-51	A8
GRPDEF(I,3,1)	Ship Set 3 (Lower Bound)	57-64	A8
GRPDEF(I,3,2)	Ship Set 3 (Upper Bound)	68-75	A8

Type B Group Definition Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
GRPDEF(1,4,1)	Ship Set 4 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GPPDEF(1,4,2)	Ship Set 4 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDEF(1,5,1)	Ship Set 5 (Lower Bound)	33-40	A8
GRPDEF(1,5,2)	Ship Set 5 (Upper Bound)	44-51	A8
GRPDEF(1,6,1)	Ship Set 6 (Lower Bound)	57-64	A8
GRPDEF(1,6,2)	Ship Set 6 (Upper Bound)	68-75	A8

Group Definition Deck Terminator Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
Terminator	Terminator of Ship Group Definition Deck (any negative number)	1-3	I3

Identification Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
DATE	Date (mo/dy/yr)	1-12	3A4
COMMENT	Comment	15-34	5A4

Yard Option Cards. There are two cards for each required yard: a type A card which describes the options and years and a type B card for requesting the group numbers. A Yard Option terminator card follows the final type B Option card.

Type A Yard Option Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IYDSEL	Yard name	1-5	A5
ALL	The punch characters "ALL" will sum entire yard	8-10	A3
REP	The punch characters "REP" will compute repairs only	13-15	A3
ALT	The punch characters "ALT" will compute alterations only	18-20	A3
TOTAL	The punch characters "TOT" will compute total of repairs and alterations	23-25	A3
IYEAR(1)	2-digit year	30-31	I2
IYEAR(2)	2-digit year	33-34	I2
IYEAR(3)	2-digit year	36-37	I2
IYEAR(4)	2-digit year	39-40	I2
IYEAR(5)	2-digit year	42-43	I2

Type B Yard Option Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
IYDSEL	Yard name	1-5	A5
IYDGRP(1-25)	Group numbers to be processed	7-80	25(1X,12)

Yard Option Terminator Card

<u>Variable Name</u>	<u>Description</u>	<u>Field</u>	<u>Format</u>
LAST	End card of input data	1-5	A5

An example of an input deck for REPMAT is shown in Figure 6.4-1.

6.4.3.2 Unit 8 - SWBS-Shop Matrix File

The SWBS-Shop Matrix File is a binary file so the format is given only as a guide to the size of the variables.

Header Record. The format for the Header Record is described below. The arrays of yards and their options are dimensioned for 13.

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
OWN	Yard ownership indicator	1	(A1)
COAST	Coast	2	(A1)
IYEAR	First fiscal year of LRPS projection	3	(I2)
IYDSEC(1)	Yard name	4	(A5)
IOPTS(1)	Option flag	5	(A1)
IYDSEC(2)	Yard name	6	(A5)
IOPTS(2)	Option Flag	7	(A1)
.	.	.	.
.	.	.	.
.	.	.	.
IYDSEC(13)	Yard name	28	(A5)
IOPTS(13)	Option flag	29	(A1)

Manday Record. There is one Manday Record for each of the 20 shops for each six-month period of an availability.

<u>Variable Name</u>	<u>Description</u>	<u>Position</u>	<u>Format</u>
ISHULL	Ship-type/hull-number	1	(A8)
ITYPWK	Type work	2	(A3)
IYD	Yard	3	(A5)
IGROUP	Group number	4	(I3)
IFYR	Fiscal year (this record)	5	(I2)
OWN	Yard ownership indicator	6	(A1)
COAST	Coast	7	(A1)
IPERD	Period (this record)	8	(I1)
ICONT	Continuation indicator	9	(A1)
ISTRT	Availability start date (mo/dy/yr)	10	(I6)
IEND	Availability end date (mo/dy/yr)	11	(I6)
ISPEC	Specialization category	12	(A3)
VALUES(1-9)	Mandays for SWBS for this Shop	13-21	(9F10.2)
ISHOP	Index used to identify the shop number	22	(I2)

Figure 6.4-3 shows an example of a SWBS-Shop Matrix File.

6.4.4 OUTPUTS

The following units are used by REPMAT for generating hard-copy output:

Unit 6 - Summary SWBS-Shop Matrix reports.

Unit 7 - Error messages.

Section 6.4.7 gives a sample of the SWBS-Shop Matrix reports.

6.4.5 PROGRAM LISTING

```

PROGRAM REPMAT(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE8,
1 TAPE7)
C
C REPMAT IS A REPORT GENERATOR WHICH GIVES TOTAL DIRECT LABOR
C MANDAYS IN THE FORM OF A SWBS-SHOP MATRIX
C PROGRAMMER JEAN ST LAURENT CODE 1863
C WRITTEN APRIL 1976
C
C PRIOR TO RUNNING REPMAT, PROGRAM XPLODE MUST CREATE A
C SWBS-SHOP FILE FOR GIVEN YARDS AND OPTIONS
C THE OPTIONS ARE:
C REPAIRS, ONLY - JOPT = 1
C ALTERATIONS, ONLY - JOPT = 2
C TOTAL OF ALTS AND REPAIRS - JOPT = 3
C
C REPORTS MAY BE PRODUCED FOR SELECTED GROUPS OF SHIP CLASSES
C FOR A GIVEN YARD AND YEAR
C THERE IS ALSO A PROVISION TO SUM ALL DATA FOR A YARD
C SET IALL = 1
C
C DATA MAY BE REPORTED ON FOR AS MANY AS 5 YEARS
C THE REQUIRED YEARS ARE INPUT AS - IYEAR
C
C TAPE ASSIGNMENTS
C TAPE5 - INPUT - CARDS
C TAPE6 - OUTPUT
C TAPE7 - OUTPUT - ERRORS, ONLY
C TAPE8 - INPUT OF MATRIX DATA FILE CREATED BY PROGRAM XPLODE
C
C**** REAL*8 GRPDEF, IYDSEL, IYD, LAST,IYDP, ISHULL, IYARD, ISEP
C
C INTEGER GRPDEF
C COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15), IYARD(13)
C COMMON/WORK/ARRAY1(25,9,20), ARRAY2(25,9,20), ARRAY3(25,9,20),
1 ARRAY4(25,9,20), ARRAY5(25,9,20), VALUES(9,20)
C COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)
C COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), HGROUP(25)
C COMMON/IDENT/COMENT(5), DATE(13)
C COMMON/VAL/ VALYR(9,20), SUMWBS(20), SUMSHP(9), TOT
C DIMENSION NYEARS(15), IYEAR(15,5), IYDGR(5)
C DIMENSION IGRPNO(100),NGRPS(25), IALL(15), IOPT(15),IIOPT(15)
C
C**** REAL*8 ISEP/5H999999/
C
C DATA LAST/5HLAST /
C DATA ZREP/1HR/
C DATA ZALT/1HA/
C DATA ZTOT/1HT/
C DATA ZALL/3HALL/
C DATA IREP/1HR/
C DATA IALT/1HA/
C DATA ITOT/1HT/
C DATA ISEP/5H999999/

```

```

**** 10
**** 20
REPM 30
REPM 40
REPM 50
REPM 60
REPM 70
REPM 80
REPM 90
REPM 91
REPM 92
REPM 100
REPM 110
REPM 120
REPM 130
REPM 140
REPM 141
REPM 150
REPM 160
REPM 170
REPM 180
REPM 190
REPM 200
REPM 210
REPM 220
REPM 230
REPM 240
REPM 250
REPM 260
REPM 270
**** 280
REPM 290
**** 300
REPM 310
REPM 320
REPM 330
REPM 340
REPM 350
REPM 360
REPM 370
REPM 380
REPM 390
REPM 400
**** 410
REPM 440
REPM 450
REPM 460
REPM 470
REPM 480
REPM 490
REPM 500
REPM 510
REPM 520
REPM 530
**** 531

```

C		REPM 550
C	INITIAL CONDITIONS	REPM 560
	IYDP = 0	**** 570
C****	IYDP = 0.0	**** 572
	NGROUP = 0	REPM 575
C		REPM 580
C	ZERO OUT ARRAYS	REPM 590
	DO 15 I = 1, 25	REPM 600
	NGRPS(I) = 0	REPM 610
	DO 10 J = 1, 15	REPM 620
	IYDSEL(J) = 0	**** 630
C****	IYDSEL(J) = 0.0	**** 635
	IYDGRP(J,I) = 0	REPM 640
	DO 5 K = 1, 5	REPM 650
	IYEAR(J,K) = 0	REPM 660
	5 CONTINUE	REPM 670
10	CONTINUE	REPM 680
15	CONTINUE	REPM 690
	DO 19 I = 1, 100	REPM 691
	DO 17 K = 1, 6	REPM 692
	DO 16 L = 1, 2	REPM 693
	ISHIP(I,K,L) = 0	REPM 694
	IHULL(I,K,L) = 0	REPM 695
	GRPDEF(I,K,L) = 0	**** 696
C***	GRPDEF(I,K,L) = 0.0	**** 697
	16 CONTINUE	REPM 698
	17 CONTINUE	REPM 699
	19 CONTINUE	REPM 699
	DO 18 I = 1, 13	REPM 700
C**18	IYARD(I) = 0.0	**** 705
	18 IYARD(I) = 0	**** 710
C		REPM 720
C	READ GROUP DEFINITION CARD DECK	REPM 730
C		REPM 740
	DO 30 I = 1, 100	REPM 750
C		REPM 760
	READ(5,100) IGRPNO(I), (GRPDEF(I,J,1),GRPDEF(I,J,2),J=1,3),	REPM 770
	1 IGRPNO(I), ((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=1,3)	REPM 780
100	FORMAT(I3, 3(5X,A8,3X,A8), T1,I3, T9,A4, T13,A4, T20,A4,T24,A4,	REPM 790
	1 T33,A4, T37,A4, T44,A4, T48,A4, T57,A4, T61,A4, T68,A4, T72,A4)	REPM 800
C		REPM 810
C	TEST FOR TERMINATOR	REPM 820
C		REPM 830
	IF(IGRPNO(I).LT.0) GO TO 35	REPM 840
	READ(5,100) IDUMMY, (GRPDEF(I,J,1),GRPDEF(I,J,2),J=4,6),	REPM 850
	1 IDUM1, ((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=4,6)	REPM 860
C		REPM 861
C	THIS SECTION REPLACES BLANKS WITH ZEROS FOR CDC, ONLY	REPM 870
	DO 25 J = 1, 6	**** 880
	DO 20 K = 1, 2	**** 890
	GRPDEF(I,J,K) = ICBZ(GRPDEF(I,J,K))	**** 900
20	CONTINUE	**** 910
25	CONTINUE	**** 920
30	CONTINUE	REPM 930
C		REPM 940
C	READ IDENTIFICATION CARD	REPM 950
C		REPM 960
	35 READ(5,101) DATE, (COMENT(I),I=1,5)	REPM 970
101	FORMAT(3A4, 2X, 5A4)	REPM 980
C		REPM 990

C	READ TYPE A YARD OPTION CARDS CONTAINING OPTIONS AND YEARS	REPM1000
C	DO 40 I = 1, 15	REPM1010
	III = I	REPM1020
	READ(5,102) IYSEL(I), ALL, REP,ALT,TOTAL, (IYEAR(I,J),J=1,5)	REPM1030
102	FORMAT(A5, 2X,A3, 2X,A1, 2(4X,A1), 6X, 5(I2,1X))	REPM1040
	IF(IYSEL(I).EQ.LAST) GO TO 45	REPM1050
C		REPM1060
C	SET FLAG FOR VARIOUS OPTIONS	REPM1070
C		REPM1080
	IOPT(I) = 0	REPM1090
	IALL(I) = 0	REPM1100
	IF(REP.EQ.ZREP) IOPT(I) = 1	REPM1110
	IF(ALT.EQ.ZALT) IOPT(I) = 2	REPM1120
	IF(TOTAL.EQ.ZTOT) IOPT(I) = 3	REPM1130
	IF(ALL.EQ.ZALL) IALL(I) = 1	REPM1140
C		REPM1150
C	READ TYPE B YARD OPTION CARDS	REPM1160
C	THESE GIVE WHICH GROUP NUMBERS (IGRPNO) ARE	REPM1170
C	TO BE PROCESSED FOR EACH YARD	REPM1180
C	THIS CARD IS THE 2ND OF THE PAIR OF YARD OPTION CARDS	REPM1181
C		REPM1190
	READ(5,103) IYSEL(I), (IYDGRP(I,J),J=1,25)	REPM1200
103	FORMAT(A5, 25(1X,I2))	REPM1210
40	CONTINUE	REPM1220
	NYDS = III	REPM1230
	GO TO 48	REPM1240
45	NYDS = III - 1	REPM1250
48	IDONE = NYDS	REPM1260
C		REPM1270
C	DETERMINE NUMBER OF GROUPS PER YARD TO BE PROCESSED	REPM1280
	DO 60 I = 1, NYDS	REPM1290
	DO 50 J = 1, 25	REPM1300
	JJ = J	REPM1310
	IF(IYDGRP(I,J) .EQ. 0) GO TO 55	REPM1320
50	CONTINUE	REPM1330
	NGRPS(I) = JJ	REPM1340
	GO TO 60	REPM1350
55	NGRPS(I) = JJ - 1	REPM1360
60	CONTINUE	REPM1370
C		REPM1380
C	DETERMINE NUMBER OF YEARS (NYEARS) TO BE PROCESSED FOR EACH YARD	REPM1390
C		REPM1400
	DO 75 I = 1, NYDS	REPM1410
	DO 65 J = 1, 5	REPM1420
	JJ = J	REPM1430
	IF(IYEAR(I,J) .EQ. 0) GO TO 70	REPM1440
65	CONTINUE	REPM1450
	NYEARS(I) = JJ	REPM1460
	GO TO 75	REPM1470
70	NYEARS(I) = JJ - 1	REPM1480
75	CONTINUE	REPM1490
	CALL HEADER(1, IDUM, IDUM)	REPM1500
	CALL BANNER	REPM1510
C		REPM1520
C		REPM1530
C	READ HEADER RECORD OF SWBS-SHOP MATRIX FILE	REPM1540
C		REPM1550
	76 READ(8) OWN, COAST, IYEAR1, (IYARD(I), IOPT(I), I=1,13)	REPM1560
	IF(EOF(8).NE.0) GO TO 255	****1570
		****1580

C**76 READ(8,END=255) OWN, COAST,IYEAR1,(IYARD(I),IIOPT(I),I=1,13)	****1590
C	REPM1600
C CHECK IF ANY OF THE SELECTED YARDS (IYDSEL) ARE IN THIS SECTOR	REPM1610
C	REPM1620
DO 79 I = 1,15	REPM1630
DO 78 J = 1,13	REPM1640
IF(IYARD(J).EQ. IYDSEL(I)) GO TO 80	REPM1650
78 CONTINUE	REPM1660
79 CONTINUE	REPM1670
C	REPM1680
C IF NO YARD TO BE PROCESSED IS IN THIS SECTOR, SKIP TO	REPM1690
C THE NEXT SECTOR	REPM1700
CALL SKPSEC	REPM1710
GO TO 76	REPM1720
C	REPM1730
C INITIALIZE FLAGS FOR EACH YARD AND ZERO OUT ARRAYS	REPM1740
80 IFIRST = 0	REPM1750
DO 89 M = 1,20	REPM1760
DO 87 L = 1,9	REPM1770
DO 85 K = 1,25	REPM1790
ARRAY1(K,L,M) = 0.0	REPM1800
ARRAY2(K,L,M) = 0.0	REPM1810
ARRAY3(K,L,M) = 0.0	REPM1820
ARRAY4(K,L,M) = 0.0	REPM1830
ARRAY5(K,L,M) = 0.0	REPM1840
85 CONTINUE	REPM1850
87 CONTINUE	REPM1860
89 CONTINUE	REPM1870
DO 90 J = 1,5	REPM1880
IYDYL(J) = 0	REPM1890
90 CONTINUE	REPM1900
DO 95 I = 1,25	REPM1910
MGROUP(I) = 0	REPM1920
JGROUP(I) = 0	REPM1930
KGROUP(I) = 0	REPM1940
95 CONTINUE	REPM1950
C	REPM1960
C READ AND THROW AWAY 1ST RECORD OF ALL ZEROS	REPM1970
200 READ(8) ISHULL, ITPWK, IYD	****1980
IF(EOF(8).NE.0) GO TO 255	****1990
C*200 READ(8,END=255) ISHULL, ITPWK, IYD	****2000
IF(IYD.EQ.0) GO TO 201	****2001
C**** IF(IYD.EQ.0.0) GO TO 201	****2002
IF(IYD.NE.IYD) GO TO 250	REPM2003
C	REPM2010
C READ 20 SWBS-SHOP RECORDS	REPM2020
C	REPM2030
201 DO 202 K = 1,20	REPM2040
READ(8) ISHULL, ITPWK,IYD, IGROUP, IFYR, OWN, COAST, IPERD,	****2050
1 ICONT, ISTRT, IEND, ISPEC, (VALUES(I,K),I=1,9), ISHOP	****2060
C*** READ(8, END=255) ISHULL,ITPWK,IYD,IGROUP,IFYR, OWN,COAST,IPERD,	****2070
C** 1 ICONT, ISTRT, IEND, ISPEC, (VALUES(I,K), I=1,9), ISHOP	****2080
IF(EOF(8) .NE. 0) GO TO 255	****2090
202 CONTINUE	REPM2100
IF(IFIRST.EQ.0) GO TO 210	REPM2110
DO 205 I = 1,25	REPM2120
MGROUP(I) = 0	REPM2130
205 CONTINUE	REPM2140
IF(IYD.NE.IYD) GO TO 250	REPM2150
GO TO 230	REPM2160

210 IFIRST = 1	REPM2170
IYOP = IYD	REPM2180
C	REPM2190
C SEE IF THIS YARD NEEDS TO BE PROCESSED	REPM2200
C	REPM2210
215 CALL SEARCH(IYD,NYDS,II,KKK), RETURNS(80)	****2220
C*215 CALL SEARCH(IYD,NYDS,II, KKK, \$80)	****2230
C	REPM2240
C	REPM2250
C SET OPTION FOR THIS YARD	REPM2260
C JOPT IS OPTION REQUESTED BY INPUT CARDS	REPM2270
C JJOPT IS THE OPTION USED TO CREATE THE XPLODE FILE	REPM2280
C	REPM2290
JJJOPT = 0	REPM2300
JOPT = IOPT(II)	REPM2310
JJOPT = IOPT(KKK)	REPM2320
IF(IIOPT(KKK) .EQ. IREP) JJJOPT = 1	REPM2330
IF(IIOPT(KKK) .EQ. IALT) JJJOPT = 2	REPM2340
IF(IIOPT(KKK) .EQ. ICT) JJJOPT = 3	REPM2350
IF(JOPT.EQ.JJJOPT) GO TO 217	REPM2360
CALL IERROR(4,JJOPT,IYD)	REPM2370
IF(IDONE.LE.1) STOP	REPM2375
CALL SKPYD(IYC)	REPM2380
GO TO 80	REPM2390
C	REPM2400
C IF A YARD TOTAL HAS BEEN REQUESTED, SET KOPT	REPM2410
217 KOPT = IALL(II)	REPM2420
C	REPM2430
C DETERMINE ARRAY OF YEARS PER YARD (IYDVR)	REPM2440
C	REPM2450
MYEAR = NYEARS(II)	REPM2460
DO 220 K = 1, MYEAR	REPM2470
IYDVR(K) = IYEAR(II, K)	REPM2480
220 CONTINUE	REPM2490
C	REPM2500
C DETERMINE NUMBER OF GROUPS (NGROUP) TO BE PROCESSED	REPM2510
C FOR THIS YARD	REPM2511
C	REPM2520
NGROUP = NGRPS(II)	REPM2530
IF(NGROUP.EQ.0) GO TO 230	REPM2540
DO 225 K = 1, NGROUP	REPM2550
KGROUP(K) = IYDGRP(II, K)	REPM2560
225 CONTINUE	REPM2570
C	REPM2580
C CHECK TO SEE IF THIS YEARS DATA IS REQUIRED	REPM2590
C	REPM2600
C*230 CALL YEAR(IFYR, IYDVR,\$200)	****2610
230 CALL YEAR(IFYR, IYDVR), RETURNS(200)	****2620
C IF THERE IS NO MATCH ON YEAR, READ NEXT SHOP RECORD	REPM2630
IF(NGROUP.GT.0) GO TO 240	REPM2640
C	REPM2650
C IF NO GROUPS ARE TO BE PROCESSED, CHECK ON ENTIRE YARD	REPM2660
C	REPM2670
IF(KOPT.EQ.1) GO TO 235	REPM2680
CALL SKPYD(IYD)	REPM2690
GO TO 215	REPM2700
C	REPM2710
C IF NO GROUPS HAVE BEEN SELECTED FOR THIS YARD BUT	REPM2720
C ENTIRE YARD IS TO BE PROCESSED - CALL SUM	REPM2730
C	REPM2740

235	KK = 1	REPM2750
	CALL SUM(NGROUP,IFYR,KK,IYD,YR,KOPT)	REPM2760
	GO TO 200	REPM2770
C		REPM2780
C	CHECK FOR PATCH OF GROUP NUMBERS	REPM2790
C		REPM2800
	240 CALL COMPAR(ISHULL,IGRPNO,NGROUP), RETURNS(242)	****2810
C	*240 CALL COMPAR(ISHULL,IGRPNO,NGROUP, \$242)	****2820
C	IF THERE IS NO MATCH ON GROUP NUMBER, CHECK IF ENTIRE	REPM2830
C	YARD IS TO BE PROCESSED	REPM2840
C		REPM2850
	IF(KOPT.EQ.1) GO TO 245	REPM2860
C		REPM2870
C	GROUPS ONLY (NOT ENTIRE YARD) ARE TO BE PROCESSED	REPM2880
C		REPM2890
	KK = 0	REPM2900
	CALL SUM(NGROUP,IFYR,KK,IYD,YR,KOPT)	REPM2910
	GO TO 200	REPM2920
	242 IF(KOPT.EQ.1) GO TO 235	REPM2930
	GO TO 200	REPM2940
C		REPM2950
C	IN ADDITION TO GROUPS, ENTIRE YARD IS TO BE PROCESSED	REPM2960
C		REPM2970
	245 KK = 2	REPM2980
	CALL SUM(NGROUP,IFYR,KK,IYD,YR,KOPT)	REPM2990
	GO TO 200	REPM3000
C		REPM3009
C	AT END OF A YARD, WRITE REPORTS FOR THAT YARD	REPM3010
	250 CONTINUE	REPM3020
C		REPM3030
C	SUBROUTINE REPORT PRODUCES THE MANDAY REPORTS	REPM3040
C	FOR A GIVEN YARD AND YEAR	REPM3050
C		REPM3070
	CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYD,YR, KOPT)	REPM3080
C		REPM3090
	IDONE = IDONE - 1	REPM3100
	IF(IDONE.EQ.0) GO TO 260	REPM3110
C		REPM3119
C	IS THIS THE LAST RECORD OF A SECTOR	REPM3120
	IF(IYD.EQ.ISEP) GO TO 76	REPM3130
	BACKSPACE 8	REPM3135
	GO TO 80	REPM3140
C		REPM3160
C	CHECK FOR RECORD OF 9 S	REPM3170
	255 IF(IYDP.EQ.ISEP) STOP	REPM3180
	CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYD,YR, KOPT)	REPM3190
	260 STOP	REPM3200
	END	REPM3210

	SUBROUTINE BANNER	BANN 10
C		BANN 20
C	SUBROUTINE TO PRINT BANNER PAGE	BANN 30
C		BANN 40
	WRITE(6,100)	BANN 50
	100 FORMAT(///, 36X, 59(1HX) //,	BANN 60
	1 37X, 58H XXXX X X XXXX XXXX XXXX X X XXX XX	BANN 70
	2XX /	BANN 80
	3 37X, 58HX X X X X X X X X X X X X	BANN 90
	4 X/	BANN 100
	5 37X, 58HX X X X X X X X X X X X X	BANN 110
	9 X /	BANN 120
	7 37X, 58H XXX X X X XXXX XXX XXXX XXX XXXXX X X XXX	BANN 130
	8X /	BANN 140
	9 37X, 58H X X X X X X X X X X X X X X	BANN 150
	A /	BANN 160
	B 37X, 58H X XX XX X X X X X X X X X X	BANN 170
	C /	BANN 180
	D 37X, 58HXXXXX X X XXXX XXXX XXXX X X XXX X	BANN 190
	E ///	BANN 200
	F 44X, 47HXXXX XXXXX XXXX XXX XXXX XXXXX XXXX /	BANN 210
	G 44X, 47HX X X X X X X X X X /	BANN 220
	H 44X, 47HX X X X X X X X X /	BANN 230
	I 44X, 47HXXXX XXXX XXXX X X XXXX X XXX /	BANN 240
	J 44X, 47HX X X X X X X X X)	BANN 250
	WRITE(6,101)	BANN 260
	101 FORMAT(1H 43X,47HX X X X X X X X X X /	BANN 270
	1 44X, 47HX X XXXXX X XXX X X X XXXX ///	BANN 280
	2 35X, 59(1HX) /)	BANN 290
	RETURN	BANN 300
	END	BANN 310

C**	SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP), RETURNS(NONE)	****	10
C	SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP,*)	****	20
C		COMP	30
C	SUBROUTINE TO DETERMINE WHICH REQUIRED GROUPS	COMP	40
C	THIS DATA RECORD FALLS IN	COMP	50
C		COMP	60
C	INTEGER GRPDEF	****	70
C****	REAL*8 GRPDEF, IYDSEL, IYD, ISHULL, IYARD	****	80
	COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15), IYARD(13)	COMP	90
	COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)	COMP	100
	DIMENSION IGRPNO(100)	COMP	110
C		COMP	120
C	IFLAG = 0	COMP	130
C		COMP	140
C	CHECK GROUP NUMBERS TO BE PROCESSED FOR THIS YARD(KGROUP)	COMP	150
C	AGAINST GROUP NUMBER OF GROUP DEFINITION DATA BASE (IGRPNO)	COMP	160
	DO 40 K = 1, NGROUP	COMP	170
	DO 30 I = 1,100	COMP	180
	IF(IGRPNO(I) .NE. KGROUP(K)) GO TO 30	COMP	190
C		COMP	200
C	CHECK SHIP AND HULL RANGE	COMP	210
	DO 20 J = 1,6	COMP	220
	IF(ISHULL.GE. GRPDEF(I,J,1) .AND. ISHULL.LE.GRPDEF(I,J,2))	****	230
	1 GO TO 10	****	240
C		COMP	250
C	REVERSE THE TEST FOR 360	COMP	260
C****	IF(ISHULL.LE. GRPDEF(I,J,1) .AND. ISHULL.GE.GRPDEF(I,J,2))	****	270
C*** 1	GO TO 10	****	280
	GO TO 20	COMP	290
C		COMP	300
C	MGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS RECORD	COMP	310
C	JGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS YARD	COMP	320
C		COMP	330
	10 MGROUP(K) = IGRPNO(I)	COMP	340
	JGROUP(K) = MGROUP(K)	COMP	350
	IFLAG = 1	COMP	360
	20 CONTINUE	COMP	370
	30 CONTINUE	COMP	380
	40 CONTINUE	COMP	390
	IF(IFLAG.EQ.1) RETURN	COMP	400
C		COMP	410
C	IF NONE OF THE GROUP NUMBERS MATCH, ALTERNATE RETURN THAT	COMP	420
C	CHECKS ON PROCESSING ENTIRE YARD	COMP	430
	RETURN NONE	****	440
C**	RETURN 1	****	450
	END	COMP	460

C	SUBROUTINE HEADER(NOPG, ID, JOPT)	HEAD 10
C		HEAD 20
C	SUBROUTINE TO WRITE REPORT IDENTIFICATION AND NUMBER PAGES	HEAD 30
	COMMON/IDENT/COMENT(5), DATE(3)	HEAD 40
	IF(NOPG.GT.1) GO TO 10	HEAD 50
	IPAGE = 0	HEAD 60
	WRITE(6,100) DATE,COMENT	HEAD 70
100	FORMAT(1H1, 2X, 4HDATE, 2X, 3A4, /, 3X, 5A4)	HEAD 80
	RETURN	HEAD 90
	10 IF(ID.NE.IDP) IPAGE = 0	HEAD 100
	IPAGE = IPAGE + 1	HEAD 110
	IDP = ID	HEAD 120
	WRITE(6,101) ID,JOPT,DATE,IPAGE,COMENT	HEAD 130
101	FORMAT(1H1, 2X, 12HREPORT: 62-0,I1, 1H-, I1, 2X, 5HDATE:, 1X,	HEAD 140
	1 3A4, 80X, 4HPAGE, I4,/ 3X, 5A4)	HEAD 150
	RETURN	HEAD 160
	END	HEAD 170
		HEAD 180

C	SUBROUTINE IERROR(N, IDUMMY, IDBL)	IERR 10
C		IERR 20
C	SUBROUTINE TO PRINT OUT ERROR MESSAGES	IERR 30
C		IERR 40
C***	REAL*8 IDBL	**** 50
C		IERR 60
	GO TO (10,20,30,40), N	IERR 70
10	WRITE(7,100) IDBL	IERR 80
100	FORMAT(1X, 37H * * END OF FILE ENCOUNTERED IN YARD , A5)	IERR 90
	STOP	IERR 100
20	WRITE(7,101) IDBL	IERR 110
101	FORMAT(1X, 50H * * * ERROR IN GROUP NUMBERS - NO MATCH FOR YARD ,	IERR 120
	1 A5)	IERR 130
	RETURN	IERR 140
30	WRITE(7,102) IDUMMY, IDBL	IERR 150
102	FORMAT(1X, 25H * * * NO SHIPS IN GROUP , I3, 1X, 4HFOR , A5)	IERR 160
	RETURN	IERR 170
40	WRITE(7,103) IDBL, IDUMMY	IERR 180
103	FORMAT(1X, 18H * * * OPTION FOR , A5, 6H IS - , A3,	IERR 190
	1 15H * * * NO MATCH)	IERR 200
	RETURN	IERR 205
	END	IERR 210

	SUBROUTINE NOSHIP(JJ)	NOSH 10
C		NOSH 20
C	SUBROUTINE TO DETERMINE THE NUMBER OF SHIPS PER GROUP	NOSH 30
C	AND PRINTS OUT SHIP HULL VALUES	NOSH 40
C		NOSH 50
	COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)	NOSH 70
C***	REAL*8 ISHULL	**** 80
C		NOSH 90
	DATA IBLANK/4H /	NOSH 100
	L = 1	NOSH 110
	DO 10 KK = 1, 6	NOSH 120
	KKK = KK	NOSH 130
	IF(ISHIP(JJ,KKK,L) .EQ. IBLANK) GO TO 12	NOSH 140
10	CONTINUE	NOSH 150
	GO TO 15	NOSH 160
12	KKK = KKK - 1	NOSH 170
15	IF(KKK.GT.3) GO TO 20	NOSH 180
	MM = KKK	NOSH 190
	WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=1,MM)	NOSH 200
	RETURN	NOSH 210
20	MM = 3	NOSH 220
	WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=1,MM)	NOSH 230
	MM = KKK	NOSH 240
	WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=4,MM)	NOSH 250
102	FORMAT(1H , 30X, 3(A4,1X,A4,1X,1H-,1X,A4,1X,A4,4X))	NOSH 260
	RETURN	NOSH 270
	END	NOSH 280

C	SUBROUTINE REPORT(IYD, NGROUP, MYEAR, JOPT, IYDNR, KOPT)	REPT 10
C		REPT 20
C	SUBROUTINE TO PROCESS DATA FOR REPAIRS, ALTS,	REPT 30
C	AND TOTAL OF REPAIRS AND ALTS	REPT 40
C		REPT 50
C	C*** REAL*8 IYD	*** 60
C		REPT 70
C	COMMON/WORK/ARRAY1(25,9,20), ARRAY2(25,9,20), ARRAY3(25,9,20),	REPT 80
C	1 ARRAY4(25,9,20), ARRAY5(25,9,20), VALUES(9,20)	REPT 90
C	COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)	REPT 100
C	COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)	REPT 110
C	COMMON/VAL/ VALYR(9,20), SUMWBS(20), SUMSHP(9), TOT	REPT 120
C	DIMENSION IYDNR(5)	REPT 130
C		REPT 140
C		REPT 150
C	ASSIGN YARD NUMBER FOR REPORT IDENTIFICATION	REPT 160
C		REPT 170
C	CALL YDNO(IYD, ID)	REPT 180
C		REPT 190
C	IF ENTIRE YARD HAS BEEN PROCESSED (KOPT = 1) IT IS	REPT 200
C	STORED AS THE 1ST GROUP IN THE ARRAY	REPT 210
C		REPT 220
C	IF(KOPT.NE.1) GO TO 5	REPT 230
C	NGROUP = NGROUP + 1	REPT 240
C		REPT 250
C		REPT 260
C	NGROUP IS THE NUMBER OF GROUPS FOR THIS YARD	REPT 270
C	JGROUP IS THE ARRAY OF GROUP NUMBERS THAT MATCH	REPT 280
C	FOR THIS YARD	REPT 290
C		REPT 300
C	5 DO 400 J = 1, NGROUP	REPT 310
C		REPT 320
C	TEST IF ENTIRE YARD (BUT NO GROUPS) IS TO BE PROCESSED	REPT 330
C	IF(NGROUP.EQ.1 .AND. KOPT.EQ.1) GO TO 10	REPT 340
C	IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 10	REPT 350
C	LL = J - KOPT	REPT 360
C	JJ = JGROUP(LL)	REPT 370
C		REPT 380
C	CHECK IF THERE ARE MATCHING SHIPS IN EACH REQUIRED GROUP	REPT 390
C		REPT 400
C	IF(JJ.NE.0) GO TO 10	REPT 410
C	KK = KGROUP(LL)	REPT 420
C	CALL IERROR(3, KK, IYD)	REPT 430
C	GO TO 400	REPT 440
C		REPT 450
C	MYEAR IS THE NUMBER OF YEARS FOR THIS YARD	REPT 460
C		REPT 470
C	10 DO 350 I = 1, MYEAR	REPT 480
C	II = I	REPT 490
C		REPT 500
C	ZERO OUT ARRAYS	REPT 510
C	DO 30 M = 1, 20	REPT 520
C	DO 20 L = 1, 9	REPT 530
C	SUMWBS(M) = 0.0	REPT 540
C	SUMSHP(L) = 0.0	REPT 550
C	20 CONTINUE	REPT 560
C	30 CONTINUE	REPT 570
C	TOT = 0.0	REPT 580
C	GO TO (200, 220, 240, 260, 280), II	REPT 590

C	200 DO 210 M = 1,20	REPT 600
	DO 205 L = 1,9	REPT 610
	VALYR(L,M) = ARRAY1(J,L,M)	REPT 620
	205 CONTINUE	REPT 630
	210 CONTINUE	REPT 640
	GO TO 300	REPT 650
C	220 DO 230 M = 1,20	REPT 660
	DO 225 L = 1,9	REPT 670
	VALYR(L,M) = ARRAY2(J,L,M)	REPT 680
	225 CONTINUE	REPT 690
	230 CONTINUE	REPT 700
	GO TO 300	REPT 710
C	240 DO 250 M = 1,20	REPT 720
	DO 245 L = 1,9	REPT 730
	VALYR(L,M) = ARRAY3(J,L,M)	REPT 740
	245 CONTINUE	REPT 750
	250 CONTINUE	REPT 760
	GO TO 300	REPT 770
C	260 DO 270 M = 1,20	REPT 780
	DO 265 L = 1,9	REPT 790
	VALYR(L,M) = ARRAY4(J,L,M)	REPT 800
	265 CONTINUE	REPT 810
	270 CONTINUE	REPT 820
	GO TO 300	REPT 830
C	280 DO 290 M = 1,9	REPT 840
	DO 285 L = 1,9	REPT 850
	VALYR(L,M) = ARRAY5(J,L,M)	REPT 860
	285 CONTINUE	REPT 870
	290 CONTINUE	REPT 880
C		REPT 890
C	FIND VALUES OF TOTAL SMBS FOR 20 SHOPS	REPT 900
	300 DO 310 M = 1,20	REPT 910
	DO 305 L = 1,9	REPT 920
	SUMWBS(M) = SUMWBS(M) + VALYR(L,M)	REPT 930
	305 CONTINUE	REPT 940
	310 CONTINUE	REPT 950
C		REPT 960
C	FIND VALUES OF TOTAL SHOPS FOR 9 SMBS	REPT 970
	DO 320 L = 1,9	REPT 980
	DO 315 M = 1,20	REPT 990
	SUMSHP(L) = SUMSHP(L) + VALYR(L,M)	REPT1000
	315 CONTINUE	REPT1010
	320 CONTINUE	REPT1020
C		REPT1030
C	FIND VALUE OF TOTAL-TOTAL	REPT1040
	DO 325 M = 1,20	REPT1050
	TOT = SUMWBS(M) + TOT	REPT1060
	325 CONTINUE	REPT1070
	CALL TITLE(JOPT,IO)	REPT1080
	WRITE(6,100) IYO	REPT1090
	100 FORMAT(1H, 60X, 5HYARD1, 1X, A5, /)	REPT1100
	IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 65	REPT1110
	WRITE(6,101) JGROUP(LL)	REPT1120
	101 FORMAT(1H, 44X, 24HSUMMATION FOR GROUP NO. , I2,	REPT1130
	1 16H - CONSISTING OF, /)	REPT1140
		REPT1150
		REPT1160
		REPT1170
		REPT1180
		REPT1190

C		REPT1200
C	DETERMINE THE NUMBER OF SHIPS PER GROUP FOR PRINTOUT	REPT1210
C	CALL NOSHIP(JJ)	REPT1220
	WRITE(6,105)	REPT1230
105	FORMAT(1H)	REPT1240
	GO TO 70	REPT1250
65	WRITE(6,106)	REPT1260
106	FORMAT(1H , 51X, 28HSUMMATION FOR AN ENTIRE YARD, /)	REPT1270
70	WRITE(6,107) IYDVR(I)	REPT1280
107	FORMAT(1H , 60X, 9HFISCAL 19, I2,/, T62, 11H-----, /)	REPT1290
C	CALL REP1	REPT1300
350	CONTINUE	REPT1310
400	CONTINUE	REPT1320
	RETURN	REPT1330
	END	REPT1340
		REPT1350
		REPT1360

	SUBROUTINE REP1	REP1 10
C		REP1 20
C	SUBROUTINE TO PRINT SWBS- SHOP VALUES	REP1 30
C		REP1 40
	COMMON/VAL/ VALYR(9,20), SUMWBS(20), SUMSHP(9), TOT	REP1 50
	DIMENSION ISHP(20)	REP1 60
	DIMENSION ISWBS(9)	REP1 70
	DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 65, 67,	REP1 80
1	71, 72, 81, 94, 99, 3MOTH /	REP1 90
	DATA ISWBS/100,200,300,400,500,600,700,800,900/	REP1 100
C		REP1 110
	WRITE(6,100) (ISWBS(N),N=1,9)	REP1 120
100	FORMAT(1H , 20X, 9(1X,5HWSBS , I3,1X), 2X, 5HTOTAL, / T22,	REP1 130
1	10(1X, 2(4H----), 1X))	REP1 140
	DO 10 M = 1,12	REP1 150
	WRITE(6,101) ISHP(M), (VALYR(L,M), L=1,9), SUMWBS(M)	REP1 160
10	CONTINUE	REP1 170
	DO 20 M = 14,19	REP1 171
	WRITE(6,101) ISHP(M), (VALYR(L,M), L=1,9), SUMWBS(M)	REP1 172
20	CONTINUE	REP1 173
102	FORMAT(1H , 6X, 5MOTHER, 9X, 10(F9.0,1X) /)	REP1 180
	WRITE(6,102) (VALYR(L,20), L=1,9), SUMWBS(20)	REP1 190
	WRITE(6,103) (SUMSHP(L),L=1,9), TOT	
101	FORMAT(1H , 5X, 6HSHOP1 , I2, 7X, 10(F9.0,1X) /)	REP1 210
103	FORMAT(1H , 6X, 5HTOTAL,9X, 10(F9.0,1X))	REP1 220
	RETURN	REP1 230
	END	REP1 240

SUBROUTINE SEARCH(IYD,NYDS,III,KKK), RETURNS(NOYD)	**** 10
C*** SUBROUTINE SEARCH(IYD,NYDS,III,KKK,*)	**** 20
C	SEAR 30
C SUBROUTINE TO DETERMINE IF THIS YARD NEEDS TO BE PROCESSED	SEAR 40
C	SEAR 50
C**** REAL*8 GRPDEF, IYSEL, IYD, IYARD	**** 60
INTEGER GRPDEF	**** 70
COMMON/IDATA/ GRPDEF(100,6,2), IYSEL(15), IYARD(13)	SEAR 80
C	SEAR 90
5 DO 10 II = 1,NYDS	SEAR 100
III = II	SEAR 110
IF(IYD.EQ.IYSEL(II)) GO TO 20	SEAR 120
10 CONTINUE	SEAR 130
C	SEAR 140
C IF THIS YARD ISNT REQUIRED, SKIP TO NEXT YARD	SEAR 150
CALL SKPYD(IYC)	SEAR 160
RETURN NOYD	**** 170
C*** RETURN 1	**** 180
C	SEAR 190
C DETERMINE SUBSCRIPT OF MATCHING YARD NAME (IYARD)	SEAR 200
C TO FIND ITS ORDER ON HEADER RECORD	SEAR 210
C	SEAR 220
20 DO 30 KK = 1,13	SEAR 230
KKK = KK	SEAR 240
IF(IYD.EQ.IYARD(KK)) RETURN	SEAR 250
30 CONTINUE	SEAR 260
RETURN	SEAR 265
END	SEAR 270

SUBROUTINE SKPSEC		SKPS 10
C		SKPS 20
C	SUBROUTINE TO SKIP AN ENTIRE SECTOR	SKPS 30
C		SKPS 40
C***	REAL*8 IYD, IYDP, ISHULL, ISEP	**** 50
	DATA ISEP/5H99999/	SKPS 60
C		SKPS 70
10	READ(8) ISHULL, ITYPWK, IYD	**** 80
	IF(EOF(8) .NE.0) GO TO 20	**** 90
C**10	READ(8, END=20) ISHULL, ITYPWK, IYD	**** 100
	IYDP = IYD	SKPS 110
	IF(IYD.NE.ISEP) GO TO 10	SKPS 120
	RETURN	SKPS 130
20	CALL IERROR(1, IDUM, IYDP)	SKPS 140
	RETURN	SKPS 145
	END	SKPS 150

SUBROUTINE SKPYD(IYD)		SKPY 10
C		SKPY 20
C	SUBROUTINE TO SKIP AN ENTIRE YARD	SKPY 30
C		SKPY 40
C**	REAL*8 IYD, IYDP, ISHULL	**** 50
C		SKPY 60
	IYDP = IYD	SKPY 70
10	READ(8) ISHULL, ITYPWK, IYD	**** 80
	IF(EOF(8) .NE.0) GO TO 20	**** 90
C**10	READ(8, END=20) ISHULL, ITYPWK, IYD	**** 100
	IF(IYD.EQ.IYDP) GO TO 10	SKPY 110
	BACKSPACE 8	SKPY 120
	RETURN	SKPY 130
20	CALL IERROR(1, IDUM, IYDP)	SKPY 140
	RETURN	SKPY 145
	END	SKPY 150

C	SUBROUTINE SUM(NGROUP,IFYR,KK,IYDVR,KOPT)	SUMM 10
C		SUMM 20
C	PROGRAM TO SUM AND STORE ALT AND REPAIR DATA ACCORDING	SUMM 30
C	TO GRUP AND YEAR	SUMM 40
C		SUMM 50
	COMMON/WORK/ARRAY1(25,9,20), ARRAY2(25,9,20), ARRAY3(25,9,20),	SUMM 60
	1 ARRAY4(25,9,20), ARRAY5(25,9,20), VALUES(9,20)	SUMM 70
	COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), HGROUP(25)	SUMM 80
	DIMENSION IYDVR(5)	SUMM 90
C		SUMM 100
C	IF THE SUBROUTINE IS CALLED WITH	SUMM 110
C	KK = 0 DONT SUM ENTIRE YARD	SUMM 120
C	KK = 1 NO GROUPS, BUT SUM ENTIRE YARD	SUMM 130
C	KK = 2 SUM ENTIRE YARD IN ADDITION TO GROUPS	SUMM 140
C		SUMM 150
C		SUMM 160
C	CHECK YEAR WITH ARRAY OF YEARS REQUIRED FOR THIS YARD AND	SUMM 170
C	USE THE INDEX TO DETERMINE WHICH ARRAY TO USE	SUMM 180
	DO 10 I = 1,5	SUMM 190
	II = I	SUMM 200
	IF(IFYR.EQ.IYDVR(I)) GO TO 15	SUMM 210
	10 CONTINUE	SUMM 220
C		SUMM 230
C	CHECK ARRAY OF MATCHED GROUP NUMBERS WITH ARRAY OF	SUMM 240
C	GROUP NUMBERS REQUIRED	SUMM 250
	15 KKK = KK + 1	SUMM 260
	GO TO (20,25,30), KKK	SUMM 270
	20 LLL = NGROUP	SUMM 280
	GO TO 35	SUMM 290
	25 LLL = 1	SUMM 300
	GO TO 35	SUMM 310
	30 LLL = NGROUP + 1	SUMM 320
	35 DO 55 J = 1,LLL	SUMM 330
	IF(KK.EQ.1) GO TO 40	SUMM 340
	IF(KK.GE.1 .AND. J.EQ.1) GO TO 40	SUMM 350
	JJ = J - KOPT	SUMM 360
	IF(HGROUP(JJ).EQ.KGROUP(JJ)) GO TO 40	SUMM 370
	GO TO 55	SUMM 380
		SUMM 390
		SUMM 400
		SUMM 410
C		SUMM 420
C	ARRAY1, ARRAY2, ARRAY3, ARRAY4 AND ARRAYS ARE DATA ARRAYS	SUMM 430
C	WHERE J IS THE GROUP NUMBER, L IS THE SHOP	SUMM 440
C	AND K IS SMBS FOR YEAR II	SUMM 450
C		SUMM 460
	40 GO TO (200, 220, 240, 260, 280), II	SUMM 470
C		SUMM 480
	200 DO 210 L = 1,20	SUMM 490
	DO 205 K = 1,9	SUMM 500
	ARRAY1(J,K,L) = ARRAY1(J,K,L) + VALUES(K,L)	SUMM 510
	205 CONTINUE	SUMM 520
	210 CONTINUE	SUMM 530
C	WRITE(6,999) II, J, ARRAY1(J,1,3), VALUES(1,3)	SUMM 540
	999 FORMAT(1H , 7HYEAR = , I3, 2X, 6HGROUP , I2, 2X, 8HARRAY = F9.1,	SUMM 550
	1 2X,9HVALUES = , F9.1)	SUMM 560
	GO TO 55	SUMM 570
C		SUMM 580
	220 DO 230 L = 1,20	SUMM 590
	DO 225 K = 1,9	SUMM 600
	ARRAY2(J,K,L) = ARRAY2(J,K,L) + VALUES(K,L)	SUMM 610
	225 CONTINUE	SUMM 620

230 CONTINUE	SUMM 630
C WRITE(6,999) II, J, ARRAY2(J,1,3), VALUES(1,3)	SUMM 640
GO TO 55	SUMM 650
C	SUMM 660
240 DO 250 L = 1,20	SUMM 670
DO 245 K = 1,9	SUMM 680
ARRAY3(J,K,L) = ARRAY3(J,K,L) + VALUES(K,L)	SUMM 690
245 CONTINUE	SUMM 700
250 CONTINUE	SUMM 710
C WRITE(6,999) II, J, ARRAY3(J,1,3), VALUES(1,3)	SUMM 720
GO TO 55	SUMM 730
C	SUMM 740
260 DO 270 L = 1,20	SUMM 750
DO 265 K = 1,9	SUMM 760
ARRAY4(J,K,L) = ARRAY4(J,K,L) + VALUES(K,L)	SUMM 770
265 CONTINUE	SUMM 780
270 CONTINUE	SUMM 790
C WRITE(6,999) II, J, ARRAY4(J,1,3), VALUES(1,3)	SUMM 800
GO TO 55	SUMM 810
C	SUMM 820
280 DO 290 L = 1,20	SUMM 830
DO 285 K = 1,9	SUMM 840
ARRAY5(J,K,L) = ARRAY5(J,K,L) + VALUES(K,L)	SUMM 850
285 CONTINUE	SUMM 860
290 CONTINUE	SUMM 870
C WRITE(6,999) II, J, ARRAY5(J,1,3), VALUES(1,3)	SUMM 880
55 CONTINUE	SUMM 890
RETURN	SUMM 900
END	SUMM 910

	SUBROUTINE TITLE (JOPT, ID)	TITL 10
C		TITL 20
C	SUBROUTINE TO WRITE CORRECT TITLE ACCORDING TO THE OPTION	TITL 30
C		TITL 40
	COMMON/IDENT/COMENT(5), DATE(3)	TITL 50
C		TITL 60
	CALL HEADER(2, ID,JOPT)	TITL 70
	IF(JOPT.NE.1) GO TO 10	TITL 80
	WRITE(6,100)	TITL 90
100	FORMAT(1H , 42X, 45HTOTAL DIRECT REPAIR MANDAYS BY SWBS AND SHOPS	TITL 100
	1 , /)	TITL 110
	RETURN	TITL 120
10	IF(JOPT.NE.2) GO TO 20	TITL 130
	WRITE(6,101)	TITL 140
101	FORMAT(1H , 40X, 49HTOTAL DIRECT ALTERATION MANDAYS BY SWBS AND SHOPS	TITL 150
	1OPS, /)	TITL 160
	RETURN	TITL 170
20	IF(JOPT.NE.3) GO TO 30	TITL 180
	WRITE(6,102)	TITL 190
102	FORMAT(1H , 35X, 60HTOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY	TITL 200
	1SWBS AND SHOPS, /)	TITL 210
30	RETURN	TITL 220
	END	TITL 230


```

SUBROUTINE YDNO(IYD, ID)
C
C      SUBROUTINE TO ASSIGN A NUMBER TO EACH YARD FOR
C      REPORT IDENTIFICATION
C
C**** REAL*8 IYD, ICHASN, LBECH, MARE, NORVA, IPEARL, IPHILA, IPTSMH,
C****1 IPUGET
C
DATA ICHASN/5HCHASN/
DATA LBECH/5HLBECH/
DATA MARE/5HMARE /
DATA NORVA/5HNORVA/
DATA IPEARL/5HPERAL/
DATA IPHILA/5HPHILA/
DATA IPTSMH/5HPTSMH/
DATA IPUGET/5HPUGET/
C
IF(IYD.EQ.ICHASN) ID = 1
IF(IYD.EQ.LBECH) ID = 2
IF(IYD.EQ.MARE) ID = 3
IF(IYD.EQ.NORVA) ID = 4
IF(IYD.EQ.IPEARL) ID = 5
IF(IYD.EQ.IPHILA) ID = 6
IF(IYD.EQ.IPTSMH) ID = 7
IF(IYD.EQ.IPUGET) ID = 8
RETURN
END

```

YDNO 10
YDNO 20
YDNO 30
YDNO 40
YDNO 50
**** 60
**** 70
YDNO 80
YDNO 90
YDNO 100
YDNO 110
YDNO 120
YDNO 130
YDNO 140
YDNO 150
YDNO 160
YDNO 170
YDNO 180
YDNO 190
YDNO 200
YDNO 210
YDNO 220
YDNO 230
YDNO 240
YDNO 250
YDNO 260
YDNO 270

```

SUBROUTINE YEAR(IFYR,IYDyr), RETURNS(NOYEAR)
C** SUBROUTINE YEAR(IFYR,IYDyr,*)
C
C      SUBROUTINE TO SEE IF THE YEAR ON THIS DATA RECORD IS
C      ONE THAT NEEDS TO BE PROCESSED
C
C      DIMENSION IYDyr(5)
C
C      DO 10 I = 1,5
C      IF(IFYR.EQ.IYDyr(I)) RETURN
10 CONTINUE
RETURN NOYEAR
C*** RETURN 1
C      ALTERNATE RETURN GOES TO READ THE NEXT RECORD
C
END

```

**** 10
**** 20
YEAR 30
YEAR 40
YEAR 50
YEAR 60
YEAR 70
YEAR 80
YEAR 90
YEAR 100
YEAR 110
**** 120
**** 130
YEAR 140
YEAR 150

6.4.6 GLOSSARY

COMMON VARIABLESCommon Block /IDATA/

- GRPDEF(100,6,2) Array of ship group definitions in which the first subscript refers to the group number, the second to the ship type and hull number, and the third to (1) lower bound of a set and (2) upper bound of that set.
- IYARD(13) Array of yard names for a given sector.
- IYDSEL(15) Array of yards to be processed.

Common Block /IDENT/

- COMFNT(5) Array of report identification information.
- DATE(3) Array containing the date of the run.

Common Block /MISC/

- IYGPP(15,25) Array of group numbers in which the first subscript refers to the yard name and the second to the group number to be processed.
- JGROUP(25) Array of matching group numbers for a specific yard.
- KGROUP(25) Array of group numbers required for a specific yard.
- MGROUP(25) Array of matching group numbers for a specific record.

Common Block /RFP/

- IHULL(100,6,2) Array of hull numbers in which the first subscript refers to the group number, the second to the hull number, and the third to (1) the lower bound for a set and (2) an upper bound for that set.
- ISHIP(100,6,2) Array of ship types in which the first subscript refers to the group number, the second to the ship type, and the third to (1) a lower bound for a set and (2) an upper bound for that set.

Common Block /WORK/

ARRAY1(25,9,20) Array of direct labor mandays for the first year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY2(25,9,20) Array of direct labor mandays for the second year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY3(25,9,20) Array of direct labor mandays for the third year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY4(25,9,20) Array of direct labor mandays for the fourth year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY5(25,9,20) Array of direct labor mandays for the fifth year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

VALUES(9,20) Array of direct labor mandays; the first subscript refers to the nine single-digit SWBS categories and the second to the 20 shops.

Common Block /VAL/

SUMSHIP(9) Array of total direct labor mandays for the nine SWBS categories.

SUMWBS(20) Array of total direct labor mandays for the 20 shops.

TOT Total direct labor mandays for a given yard and year.

VALYR(9,20) Array of direct labor mandays for a given year; the first subscript refers to the nine single-digit SWBS categories and the second to the 20 shops.

LOCAL VARIABLES

Main Program

ALL	Variable used to request the summary of data for an entire yard.
ALT	Variable used to request computation of alteration data.
COAST	Coast (east or west).
I	DO-loop index.
IALL(15)	Array used to determine whether the entire yard is to be summed.
IALT	Variable containing the character "A".
ICONT	Continuation indicator.
IDONE	Variable set equal to the number of yards required and decremented as each one is completed.
IDUMMY	Dummy variable used in reading the second of a pair of group definition cards.
IEUM1	Dummy variable used in re-reading group definition cards for print-out.
IEND	Availability end date (mo/day/yr).
IFIRST	Flag set to "1" after reading first record of a yard; otherwise set to "0".
IFYR	Fiscal year for this record.
IGROUP	Group number read from SWBS-Shop Matrix File.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
II	Subscript designating a specific yard.
III	Counter used to determine number of yards.
IIOPT(15)	Array of options used when the SWBS-Shop Matrix File was created.
IOPT(15)	Array of options requested for a given yard.
IPERD	Period (this record).
IREP	Variable containing the character "R".
ISEP	Variable containing the characters "99999".
ISHOP	Shop number.
ISHULL	Ship type and hull number read as a single variable from the SWBS-Shop Matrix File.

Main Program (Continued)

ISPEC	Specialization category.
ISTRT	Availability start date (mo/day/yr).
ITOT	Variable containing the character "I".
ITYPWK	Type of work.
IYD	Yard name read from SWBS-Shop Matrix File.
IYDP	Yard name (of previous yard).
IYDYR(5)	Array of years for a specific yard.
IYEAR(15,5)	Array of years; the first subscript refers to the yard and the second to the year.
IYEAR1	First fiscal year of the LRPS projection.
J	DO-loop index.
JJ	Counter used to determine the number of groups to be processed.
JJJOPT	Option for a specific yard.
JJOPT	Option used in creating the SWBS-Shop Matrix File.
JOPT	Type of report requested for a specific yard.
K	DO-loop index.
KK	Flag when set to "0", groups are summed, but not entire yard; when set to "1", entire yard is summed but not groups; when set to "2", entire yard and groups are summed.
KKK	Subscript designating a specific yard.
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LAST	Variable containing the characters "LAST" and used in testing termination of input data.
M	DO-loop index.
MYEAR	Number of years to be processed for a specific yard.
NGROUP	Number of groups to be processed for a specific yard.
NGRPS(25)	Array of number of groups for a specific yard.
NYDS	Total number of yards to be processed.
NYEARS(15)	Array containing the number of years to be processed for a specific yard.
OWN	Yard ownership indicator (Navy or private).

Main Program (Continued)

REP	Variable used to test for computing repairs.
TOTAL	Variable used to test for computing the total of repairs and alterations.
ZALL	Variable used to test for the characters "ALL".
ZALT	Variable used to test for the characters "ALT".
ZREP	Variable used to test for the characters "REP".
ZTOT	Variable used to test for the characters "TOT".

Subroutine COMPAR

I	DO-loop index.
IFLAG	Flag set to "1" after finding an agreement between the group numbers to be processed and the group numbers identifying the group definition data base.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
ISHULL	Ship type and hull number, read as a single variable.
J	DO-loop index.
K	DO-loop index.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine HEADER

ID	Identification number assigned to each yard.
IDP	Yard identification number (of previous record).
IPAGE	Variable used to increment page numbers.
JOPT	Variable used to identify type of report. When set to "1", repairs are reported on; when set to "2", alterations are reported on; when set to "3", a total of repairs and alterations are reported on.
NOFG	Page counter.

Subroutine IERROR

IDBL	Double precision variable used to transfer yard names for error messages.
------	---

Subroutine IERROR (Continued)

IDUMMY	Single precision variable used to transfer group number for error messages.
N	Error number.

Subroutine NOSHIP

IBLANK	Four-character blank space.
JJ	Subscript designating a specific group number in the ISHIP and IHULL arrays.
KK	DO-loop index.
KKK	Subscript designating a specific ship type and hull number in the ISHIP and IHULL arrays.
L	Implied DO-loop index.
MM	Index used for I/O statements.

Subroutine REPORT

I	Index for fiscal year.
ID	Identification number assigned to a specific yard.
II	Control variable designating the year in a "computed go to".
IYD	Yard name being processed.
IYDYL(5)	Array of years for a specific yard.
J	DO-loop index.
JJ	Flag for group number.
JOPT	An option for a specific yard. when set to "1", repairs only are reported on; when set to "2", alterations only are reported on; when set to "3", a total of repairs and alterations are reported on.
KK	Group number requested for which there were no data.
KOPT	Flag set to "1" if entire yard is to be processed; otherwise set to "0".
L	DO-loop index.
LL	Index for group numbers.
M	DO-loop index.

Subroutine REPORT (Continued)

MYEAR	Number of years to be processed for a specific yard.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine REPl

ISHP(20)	Array of shop numbers.
ISWBS(9)	Array of SWBS numbers.
L	Index for I/O statements.
M	DO-loop index.
N	Index for I/O statements.

Subroutine SEARCH

II	DO-loop index.
III	Argument used in transferring subscript of required yard.
IYD	Yard name being procesed.
KK	DO-loop index.
KKK	Argument used in transferring subscript of yard read from the header record.
NYDS	Total number of yards to be processed.

Subroutine SKPSEC

IDUM	Dummy argument in IERROR subroutine.
ISEP	Variable containing the characters "99999".
ISHULL	Ship type and hull number.
ITYPWK	Type of work.
IYD	Yard name being processed.
IYDP	Yard name (of previous record).

Subroutine SKPYD

IDUM	Dummy argument in IERFOR subroutine.
ISHULL	Ship type and hull number.

Subroutine SKPYD (Continued)

ITYPWK	Type of work.
IYD	Yard name.
IYDP	Yard name (of previous record).

Subroutine SUM

I	DO-loop index.
IFYR	Fiscal year for this record.
II	Control variable used in designating the required year in a "computed go to".
IYDYR(5)	Array of years for this yard.
J	DO-loop index.
JJ	Subscript used in matching group numbers.
JJJ	Initial parameter of DO-loop.
K	DO-loop index.
KK	Flag when set to "0", groups are summed but not entire yard; when set to "1", entire yard is summed but not groups; when set to "2", entire yard and groups are summed.
KKK	Control variable in "computed go to".
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LLL	Terminal parameter of DO-loop.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine TITLE

ID	Identification number assigned to a yard.
JOPT	Option for a specific yard. When set to "1", repairs are reported on; when set to "2", alterations are reported on; when set to "3", a total of repairs and alterations are reported on.

Subroutine YDNO

ICHASN	Variable containing the characters "CHASN".
ID	Identification number assigned to a yard.
IPEARL	Variable containing the characters "PEARL".
IPHILA	Variable containing the characters "PHILA".
IPTSMH	Variable containing the characters "PTSMH".
IPUGET	Variable containing the characters "PUGET".
IYD	Yard name being processed.
LBECH	Variable containing the characters "LBECH".
MARE	Variable containing the characters "MARE".
NORVA	Variable containing the characters "NORVA".

Subroutine YEAR

I	DO-loop index.
IFYR	Fiscal year for a given record.
IYDYR(5)	Array of years for a given yard.

6.4.7 SAMPLE RUN

A Group Definition Deck, a Header Card and a Yard Option Deck formed the card input (unit 5) to the program REPMAT. The SWBS-Shop Matrix File (unit 8) was created by program XPLODE for specific yards and options. For the sample run, Norfolk Shipyard was selected to be "exploded" and a file was created for the total of repair and alteration mandays. For each record on the Depot Maintenance Assignment File (DMAF), the SWBS-Shop Matrix File contained a record reserved for material costs and one record of SWBS data for each of the 20 shops. The sample input shows a header record for Norfolk and data for two DMAF records. The yard option card requested that a SWBS-Shop Matrix be projected for Norfolk for total mandays. In addition, the summation of total work to be performed in the yard was requested. This option disregards any ship groupings and produces a SWBS-Shop Matrix report for the given yard and year.

SWBS-Shop Matrix reports are 10-by-20 matrices in which the rows reflect the work projected for SWBS categories and the columns show shop mandays. For example, in the summation matrix for Norfolk, the portion of work projected for SWBS 3 and Shop 38 is 2514 mandays. Group 1 was a group of all CGN's and was defined as CGN 1 through CGN 9999. The nine SWBS values for each shop are totaled and these values correspond to the report produced by REPSHOP for the same group number and year (Section 6.1.7).

Group 3 was a group of carriers in the CV 59 class and had a hull number lower bound of 59 and an upper bound of 62. This same grouping was used in reports produced by program REPWBS.

In the SWBS-Shop Matrix reports, 19 shops are summed and totals are tabulated for each SWBS category. Comparisons may be made with the projections in reports produced by REPWBS for Norfolk (Section 6.3.7).

Unit 5 - Card Inputs

1	CGN	1	CGN	9999
1				
2	CGN	35	CGN	35
2				
3	CV	59	CV	62
3				
-1				
09/08/77			DMPPS SAMPLE RUN	
NORVA	ALL		T	62
NORVA	1	3		
LAST				

Unit 6 - SWBS-Shop Matrix Reports

DATE 09/08/77
OHPPS SAMPLE RUN

A 10x10 grid of 100 'X' marks. The top and bottom rows are solid black bars. The middle eight rows contain 'X' marks in a pattern that suggests a grid of letters, though the letters are not clearly legible due to the spacing and the density of the marks.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SMBS AND SHOPS

YARD: MORVA

SUMMATION FOR AN ENTIRE YARD

FISCAL 1982

	SMBS 100	SMBS 200	SMBS 300	SMBS 400	SMBS 500	SMBS 600	SMBS 700	SMBS 800	SMBS 900	TOTAL
SHOP: 6	2.	87.	2.	0.	86.	2.	1.	0.	3.	102.
SHOP: 11	2232.	534.	425.	228.	1672.	1013.	531.	0.	2677.	9313.
SHOP: 17	88.	1002.	300.	218.	1875.	2134.	56.	0.	678.	6336.
SHOP: 23	43.	91.	24.	11.	95.	63.	21.	0.	171.	519.
SHOP: 26	995.	2297.	458.	193.	2973.	911.	324.	1.	1324.	9477.
SHOP: 31	184.	7567.	2492.	1002.	6987.	278.	532.	7.	1865.	20086.
SHOP: 36	2.	0.	37.	1591.	0.	43.	1078.	0.	597.	3348.
SHOP: 38	137.	6988.	2514.	160.	6907.	144.	1141.	0.	2773.	20762.
SHOP: 41	31.	5975.	188.	13.	724.	223.	9.	0.	619.	7774.
SHOP: 51	124.	9879.	2689.	3898.	3147.	175.	488.	0.	1135.	20657.
SHOP: 56	275.	14764.	1328.	1468.	10969.	728.	311.	0.	3088.	32842.
SHOP: 64	163.	624.	182.	224.	1021.	1143.	191.	79.	1955.	5582.
SHOP: 67	10.	568.	316.	6162.	11.	186.	82.	0.	581.	7836.
SHOP: 71	167.	789.	191.	439.	938.	3491.	113.	1.	748.	6867.
SHOP: 72	724.	4869.	833.	389.	3616.	2465.	495.	2.	6487.	19888.
SHOP: 81	1.	26.	5.	9.	21.	6.	0.	0.	14.	83.
SHOP: 94	6.	96.	25.	20.	110.	38.	11.	1.	67.	366.
SHOP: 99	124.	265.	81.	89.	218.	301.	36.	0.	3881.	4986.
OTHER	165.	8757.	315.	2686.	1989.	1792.	583.	26687.	9252.	51987.
TOTAL	5465.	64377.	12398.	18791.	43272.	15848.	5833.	26699.	37728.	229683.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SMBS AND SHOPS

YARD: MORVA

SUMMATION FOR GROUP NO. 1 - CONSISTING OF

CEN 1 - CEN 9999

FISCAL 1982

	SMBS 100	SMBS 200	SMBS 300	SMBS 400	SMBS 500	SMBS 600	SMBS 700	SMBS 800	SMBS 900	TOTAL
SHOP: 6	0.	86.	2.	0.	60.	2.	0.	0.	3.	153.
SHOP: 11	1846.	383.	222.	110.	377.	322.	228.	0.	2164.	5753.
SHOP: 17	34.	752.	245.	129.	1543.	2014.	34.	0.	607.	5358.
SHOP: 23	31.	37.	17.	4.	30.	27.	2.	0.	142.	290.
SHOP: 26	713.	768.	380.	87.	928.	467.	61.	1.	1191.	4596.
SHOP: 31	112.	5925.	1807.	715.	3271.	51.	177.	7.	1619.	13682.
SHOP: 36	2.	0.	37.	1228.	1.	43.	1046.	0.	596.	2951.
SHOP: 38	72.	5751.	1797.	79.	1869.	139.	264.	0.	2672.	12642.
SHOP: 41	22.	2842.	154.	5.	215.	198.	7.	0.	585.	3228.
SHOP: 51	111.	8861.	1839.	1592.	1143.	160.	79.	0.	963.	14747.
SHOP: 56	84.	11853.	1106.	1153.	5748.	695.	70.	0.	2832.	23541.
SHOP: 64	101.	464.	109.	118.	380.	675.	62.	79.	1844.	3832.
SHOP: 67	9.	562.	116.	4321.	5.	185.	77.	0.	521.	5716.
SHOP: 71	125.	643.	164.	318.	378.	2529.	69.	1.	711.	4937.
SHOP: 72	233.	3926.	609.	224.	968.	1802.	154.	2.	4370.	12289.
SHOP: 81	1.	8.	5.	9.	6.	6.	0.	0.	13.	46.
SHOP: 94	3.	73.	19.	12.	42.	16.	3.	1.	61.	231.
SHOP: 99	96.	210.	57.	44.	60.	195.	5.	0.	2959.	3624.
OTHER	103.	8212.	239.	2245.	864.	456.	269.	26607.	7038.	46032.
TOTAL	3698.	50553.	9021.	12393.	17885.	9903.	2688.	26699.	30888.	183648.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SMBS AND SHOPS

YARD: NORVA

SUMMATION FOR GROUP NO. 3 - CONSISTING OF

CV 59 - CV 62

FISCAL 1982

	SMBS 100	SMBS 200	SMBS 300	SMBS 400	SMBS 500	SMBS 600	SMBS 700	SMBS 800	SMBS 900	TOTAL
SHOP# 6	2.	1.	0.	0.	25.	0.	0.	0.	0.	29.
SHOP# 11	385.	151.	103.	110.	1296.	692.	304.	0.	512.	3561.
SHOP# 17	46.	250.	55.	89.	332.	120.	22.	0.	64.	978.
SHOP# 23	12.	54.	8.	6.	65.	36.	19.	0.	29.	230.
SHOP# 26	283.	1529.	78.	186.	2044.	445.	263.	0.	134.	4861.
SHOP# 31	73.	1642.	685.	287.	3716.	219.	395.	0.	227.	7284.
SHOP# 36	0.	0.	1.	363.	8.	0.	24.	0.	2.	397.
SHOP# 38	65.	1237.	717.	81.	5030.	4.	877.	0.	101.	8120.
SHOP# 41	9.	3933.	26.	8.	510.	25.	2.	0.	34.	4546.
SHOP# 51	14.	219.	850.	2386.	2005.	16.	329.	0.	172.	5909.
SHOP# 56	198.	2911.	222.	307.	5220.	34.	248.	0.	176.	9381.
SHOP# 64	63.	160.	73.	186.	641.	468.	129.	0.	112.	1750.
SHOP# 67	1.	6.	200.	1842.	6.	0.	4.	0.	68.	2119.
SHOP# 71	41.	146.	27.	121.	553.	962.	44.	0.	37.	1930.
SHOP# 72	490.	943.	224.	165.	2648.	663.	348.	0.	2030.	7511.
SHOP# 81	8.	19.	1.	0.	15.	0.	0.	0.	1.	37.
SHOP# 94	3.	23.	6.	8.	67.	13.	8.	0.	7.	134.
SHOP# 99	28.	55.	25.	45.	158.	186.	31.	0.	922.	1362.
OTHER	62.	545.	77.	441.	1846.	1336.	234.	0.	2214.	5955.
TOTAL	1768.	13824.	3377.	6398.	25386.	5138.	3225.	0.	6840.	65955.

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